THE DOCK & HARBOUR AUTHORITY

No. 109. Vol. X. NOVEMBER, 1929.

Editorial.

The Port of Ronneby.

Amongst the lesser-known ports of Sweden is to be found the Port of Ronneby which is situated in Southern Sweden on the Ronneby River and about 4 kilometers from the Baltic.

In latter years the port has increased its facilities and accordingly its export and import figures have made advances.

The harbour itself is formed by the river bed at a depth of 1.8 metres and is principally used for local traffic with the outer port Ronnebyredd which is at the outlet of the river into the Baltic. The depth of the outer port ranges from 3.6 to 6 metres.

With regard to quayage and equipment, the inner harbour has stone quays which total 270 metres in length, and the quayage at the outer harbour is 825 metres, of which 83 metres have a depth of 6 metres alongside, 598 metres a depth of 3.6 to 5.3 metres and 144 metres a depth of 5.3 metres. There is one 6-ton hand crane and double railway tracks on all quays.

Warehouses in the port comprise 20 storage sites with a total area of 20,000 square metres and 6 privately-owned warehouses with a total square space of about 1,000 square metres.

There is also in the outer port a small patent slip which is owned by the port and mainly used for ports and requirements.

Steamers connect from this port with Stockholm, Goteborg, Oslo and intermediate coast ports as well as with Hamburg, Antwerp, Rouen and Spanish ports.

Owing to the steadily-increasing trade, the port authorities are now considering the construction of additional accommodation and the contemplated position of these is shown on one of the photographs which, together with a plan and article, appear on another page.

Deauville Harbour Improvement.

It is expected that a new dock for exclusive use by yachts will be completed early next summer, taking the place of the present entrance harbour which is to be enlarged. About £48,000 will be required for this work and is to be loaned to Deauville mostly by prominent yacht owners; the State's contribution towards this new facility is likely to be £4,000.

It is also anticipated that within a few years a dam with lock will close the River Touques rendering useless the reservoir basin near the railway station, now being used for flushing the river channel. Valuable land will therefore be reclaimed.

Manchester Ship Canal.

Manchester continues to maintain its high place in the list of British seaports notwithstanding the handicaps of trade dislocation and short time working. The cotton season ended with an increase on last year's imports. The total number of bales received up to the end of July was 679,352, as against 558,823 for the previous season. This satisfactory result is partly accounted for by the reduction of the Ship Canal Company's toll. Of the Egyptian cotton imported during the last season and retained for manufacture in the United Kingdom, Manchester received 186,000 bales and Liverpool 177,000 bales. The enterprise of the Ship Canal Company in developing Ellesmere Port and giving it facilities for dealing with all kinds of traffic has been quickly rewarded by the introduction of a big industrial undertaking in that district.

Enlargement of Princes Dock.

For over six months work has been in progress in reconstructing and enlarging Princes Dock, Liverpool, to render it adequate for the needs of the coast shipping services. The scheme will involve an expenditure of nearly £90,000 and provides for the complete modernisation of the facilities on this part of the dock estate. The scheme is in three parts: (1) To increase the width of the northern entrance to Princes Dock to 60-ft., and lower the sill to 8-ft. below the old dock sill, at an estimated cost of £58,147; (2) to modernise the shed at the north end of the west side of the dock at an estimated cost of £28,498; and (3) to extend the north end of the south-west quay a distance of 20-ft., at an estimated cost of £2,000, Coast Lines, Ltd., to pay a half of the cost. The wider entrance and a deeper and larger dock will provide accommodation for much bigger vessels than hitherto and it was in consequence of the great increase in the coastwise trade of the port, particularly between Liverpool and Ireland, that the improvements were rendered necessary. Perhaps it is because of the progress of these important works that Liverpool is not on the visiting list of the deputation of business men, who are touring the British ports to collect information for the Lord Privy Seal in connection with scheme for the relief of unemployment.

Bremen's Sea Traffic in September.

Sea shipping traffic of Bremen in September was again less than in the previous month. Only 744,379 net registered tons arrived against 822,804 in August. That is a reduction of 9½ per cent. However, this was a slight increase over September, 1928. In the three first quarters together 6,703,673 net registered tons arrived against 6,677,338 net registered tons in the previous year. The increase which amounted in the first quarter year to 70,000 net registered tons and had reached 136,000 net registered tons at the end of the first half year has therefore fallen off to 26,000 net registered tons.

Sea goods traffic of the five most important Weser ports also decreased in September. Imports and exports together amounted to 566,500 tons against 585,800 tons in the previous month and 638,200 tons in July. There is also a decrease in comparison to the previous year which has been evident since July. However, the decrease in comparison to September, 1928 (with 570,000 tons) is negligible and less than the corresponding decrease in the previous months. Imports amounted in September, 1929, to 398,500 tons and exports to 168,000 tons. During the past nine months imports and exports together amounted to 5,037,500 tons as compared with 4,370,200 tons in 1928. The increase, which amounted to 128,800 in the first quarter and which had risen by the end of the first half year to 386,000 tons has decreased to 307,300 tons. That is a similar, but not such a definite tendency, to that in the sea shipping traffic. Of the total increase from January to September, 110,300 tons were on exports and 197,000 tons on imports, of which 167,000 tons, or more than the half of the total increase, were on the increased importation of English coals.

The total traffic in the Weser ports during September was as follows:—Incoming vessels 678 with a net registered tonnage 744,379; outgoing vessels 651 with a net registered tonnage 739,372.

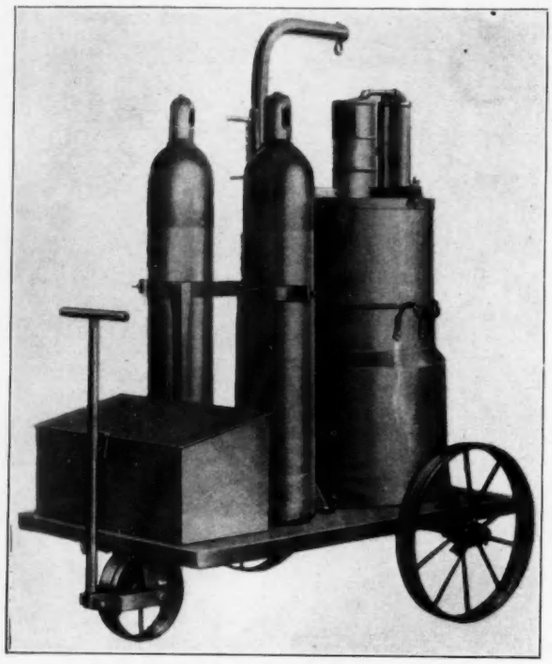
New Rough Cargo Berth at Liverpool.

To supply a long-felt want in the Port of Liverpool, the Mersey Docks and Harbour Board have converted a berth at the south side of the Carriers Dock, Liverpool, into a landing place for timber, ores, billets, wood pulp and other rough cargoes. A crane track has been provided at the berth and provision made for four 5-ton electric cranes, fitted with grabs of a capacity of about 27 cubic feet per grab. Vessels 430-ft. in length whose draft does not exceed 25-ft., can be accommodated. The berth has been so arranged as to permit the goods being delivered direct from ship to railway wagon, and certain tentative charges have been fixed for the quay operations which it is intended in the first place should be carried out by the Board themselves.

Harbour Engineering Notes.

Portable Acetylene Generators.

With the increased use of welding there has arisen a demand for portable welding apparatus for carrying out odd jobs about the works, and various ingenious designs have been evolved. The truck illustrated in the photograph, for instance, carries an acetylene generator and also two cylinders of oxygen. It is sturdily constructed throughout and is acetylene welded. Two large wheels carry the back part of the truck; a third wheel, in the front, is of the castor type and allows the truck to be turned in a radius about equal to its own length. The generator is secured to the steel deck of the truck by means of angle iron braces and two long bolts which are inserted in the handles of the generator and tightened by means of turnbuckles.



Portable Acetylene Generator.

The truck is provided with a steel tool-box with loop fastenings. This box can be used for wrenches, small tools, or for a welding or cutting outfit. The oxygen cylinders are chained to a steel rack which is fastened to the deck of the truck beside the generator. A sturdy crane is provided to be used in charging and emptying the generator. The water and residue can then be drained off through the outlet at the bottom. The crane jib is made in three sections, which can be telescoped when not in use to decrease the height.

Misconceptions about Wrought Iron.

There are several misunderstandings as to the exact nature of the various members of the iron family which one finds, surprisingly enough, exist in otherwise well-informed quarters. The useful forms of iron, speaking broadly, are wrought iron, cast iron, and steel. Each has made valuable contributions to modern progress, but the metal most generally misunderstood is wrought iron. Each of these three materials is constituted, not of iron alone, but of iron with one or more ingredients. Chemically pure iron, as distinct from commercially pure iron, is difficult to obtain and of doubtful utility.

Wrought iron is composed of iron and silicate slag, both native to the same ores. If the slag is eliminated, what remains cannot be wrought iron. Steel is composed of iron and carbon, with very small proportions of other elements, but no slag. Without carbon, the metal would not be steel. Cast iron, and not steel results from the combination of carbon and iron if the proportion of carbon present exceeds 2 per cent. Other elements as well as iron and carbon usually enter into the composition of cast iron.

In steel and cast iron the principal ingredients are chemically combined to make an homogeneous material differing in nature from any one of them. Wrought iron is unique in this respect, that the pure iron and the slag do not form a chemical union. They are very finely and very thoroughly mixed, but the product is, after all, what scientists call a physical mixture, for the tiny particles of iron and silicate are each of the same nature as before. It should be noted here that the silicate does contain more or less iron to begin with, this being in the form of iron oxide chemically combined with the oxide of silicon.

The structure of wrought iron, when examined closely, is seen to be exceedingly fibrous, which gives the metal very important characteristics—for instance, its resistance to corrosion, its toughness, and its ability to hold protective coatings such as galvanising or paint.

While both cast iron and steel are made by processes that keep the metal above melting point throughout, wrought iron is finished at a temperature below the melting point of the metal and is taken from the furnace in a pasty condition instead of a liquid condition. It follows that wrought iron, unlike steel or cast iron, cannot be shaped in a mould, but is rolled or forged.

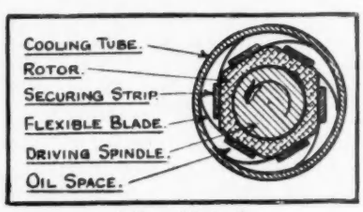
The slag content is reduced by rolling or beating, and this process expels the surplus, and the slag and iron both become elongated into fibres.

The silicate slag, which fills all the spaces between the iron particles, is a substance closely resembling glass and is non-rusting, and the slag serves therefore to protect the iron against corrosion. Wrought iron will take on a thin coating of rust, which is actually protective, but deep pitting, characteristic of other iron products, is rarely found.

A New Oil Cooler.

A new oil cooler, which interested many visitors to the Shipping and Engineering Exhibition this year, is the Stancliffe heat interchanger, which incorporates quite new features. Its cooling performance is claimed to be four or five times greater than can be obtained from a plain cooler at any given velocity. The cooling rate is a constant per square foot per degree of temperature difference at all temperatures and at any viscosity. The performance is continuously maintained. In operation the surface of the tube is continually wiped and the oil film continuously removed and renewed.

It is generally recognised that in the case of oil cooling by the plain tube method a considerable proportion of the resistance to heat transfer from oil to tube is due to the existence of a highly viscous film of oil which adheres to the wall of the tube. Heat flow can only take place through this film by conduction, and as the conductivity of oil is very low it is obvious that this film is the main reason for the low rates of heat transfer in the case of viscous liquids, and any agitation or removal of this film will be conducive toward better results.



A New Oil Cooler.

Agitation can be produced by increasing the velocity of the oil through the tube, thereby causing a turbulent state of flow in the oil and changing the flow of heat from conduction to convection. This necessitates such a high pressure drop through the tubes of the cooler that it becomes impracticable to get a greatly increased rate of heat transfer by this means.

In the Stancliffe cooler a rotor fitted with blades or wipers is revolved inside the cooling tube, thereby causing the film to be renewed and the heat flow from oil to tube to be accelerated owing to the displacement of particles of oil in the film itself, together with the induced motion of the particles in the core of the oil. This method of increasing the performance of the cooler is obtained with a small pressure drop through the tubes.

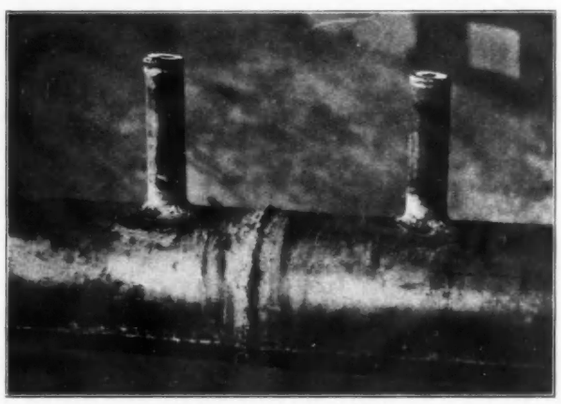
Welding Monel Metal.

Success in welding monel metal requires a knowledge of the properties of this alloy and of its peculiarities under the welding flame. Monel metal is an alloy of nickel and copper containing about 67 per cent. nickel, 28 per cent. copper, with 5 per cent. of other elements such as iron, manganese, silicon, and carbon. In appearance monel metal when new resembles untarnished nickel. Probably the most valuable property of monel metal is its resistance to corrosion. For that reason it is used extensively in food-handling machinery, textile dyeing

Harbour Engineering Notes—continued.

machinery, photographic tanks, pickling tanks, marine construction, and in chemical equipment. In welding monel metal some precautions must be observed. First, a neutral flame must be used. The tip should be one or two sizes larger than would be required for steel of the same thickness. Cold drawn monel metal wire or strips cut from sheet should be used as welding rod. As a general rule, flux is not required. The oxide film that forms on the surface of the puddle helps to protect the metal underneath from further oxidation. Keeping the outer envelope of the flame spread over the weld area will also aid in excluding air. The rod should be melted under this skin of oxide and slag. Any particles of dirt or foreign matter should be worked up into the slag by melting underneath them. Then, when the weld is built up well above the surface, as all monel metal welds should be, grinding will remove all oxide, slag, and impurities, leaving only good sound metal in the weld.

Monel metal castings present a peculiar combination of properties. Like gray cast iron, they are sensitive to sudden temperature changes while under the welding flame. Consequently in welding such castings they must be carefully pre-heated, welded while hot, and allowed to cool very slowly. Like cast aluminium, monel castings have very little strength when hot, so the piece must be properly supported in the pre-heating furnace in order that the various parts of the casting do not collapse or distort under their own weight. The casting should be brought to an even dull-red heat of about 1,200 deg. F., and the temperature maintained as steady as possible during the welding.



Header used in Chemical Works.

When the weld is completed all openings of the pre-heating furnace must be covered with asbestos paper, the draught holes closed with sand, and the casting allowed to cool gradually in the dying fire. The casting must not be uncovered until it is stone cold. It is most important that the annealing process be carefully carried out, as success depends largely upon this factor.

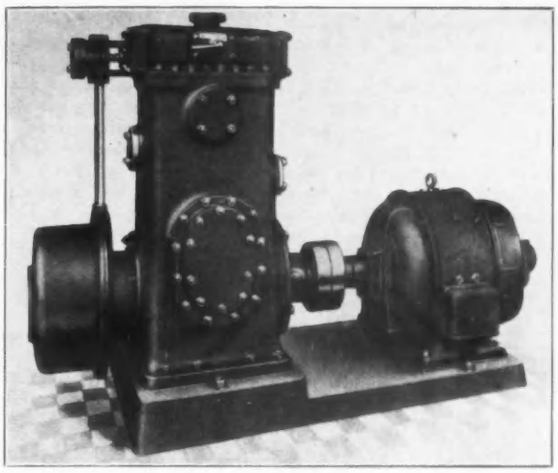
An Unusual Test for an Electric Motor.

One of the most important details of construction of electric motors is the insulation of the electrical conductors from one another and from the iron parts of the motor, particular care having to be taken by the designers in the choice of insulating material and the method of its application to ensure that water or moisture will not cause perishing. From time to time instances have been mentioned of the remarkable recuperative powers of electric motors which have been submerged for extended periods, the insulation being completely restored by the passage of an electric current through the windings.

A particularly interesting case is that of a B.T.H. motor which was completely submerged by accident for eleven days, completely dried out *in situ*, and then put back into service. This was a 450-h.p. 4-pole slip-ring induction motor of the protected type, driving a centrifugal pump, a notable feature being that the motor was wound for 6,000 volts, 40 cycles, three-phase. During its immersion so much grease, dust, and mud was deposited that it was found necessary first of all to dismantle the motor in order to clean the coils, slots, and internal framework before beginning the drying-out process, which was done by re-assembling the motor, short-circuiting the rotor, and passing a current of 20 amperes through the stator winding. This drying-out occupied ten days, the current being passed for eight hours at a time. Insulation tests were taken every day when a temperature of 160 deg. F. was registered in the windings. The machine in question has thoroughly impregnated former-wound coils in open slots, the insulation being of mica, put on by the Haefely process.

A New Vertical High-speed Steam Engine.

The photograph illustrates a new type of vertical high speed steam engine placed on the market by Sulzer Bros. This engine, which is made in sizes from 25 to 85 b.h.p., has the advantages of simplicity in design, there being no outlet valves, no stuffing boxes, no crossheads and no piston rods. The friction losses are low, as the lower half of the cylinder

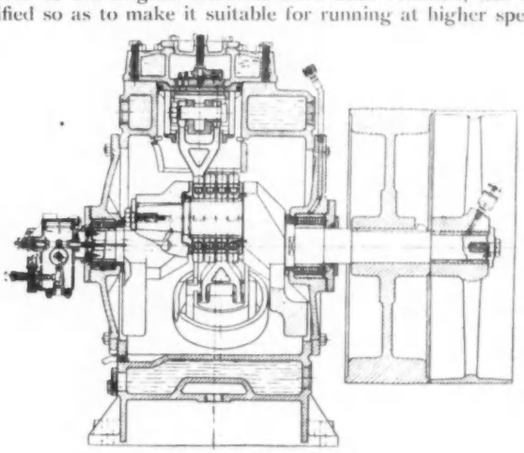


Sulzer Vertical High Speed Steam Engine. Built in sizes from 25 B.H.P. to 85 B.H.P. Speed 600 R.P.M. All sizes are of the two cylinder trunk piston type.

is water-cooled. The running is quiet, owing to the multi-cylinder design and accurate balancing. The space requirements are small, and the engine is light in weight. The "Isodrome" governor gives constant speed at any load. The accessibility to the driving gear and cylinders is good, the cylinder head forming a steam chest which is common to both cylinders. The totally enclosed design and forced lubrication are other features of interest. The engine, which has a speed of 600 r.p.m. and is of the two-cylinder trunk piston type, is built on the single-acting uniflow principle with steam cut-off regulation, so that steam consumption is lower than is possible with the usual throttle regulation.

A New Quadruplex Air Compressor.

An interesting form of air compressor is that shown in the diagram, and known as the "QR" type of quadruplex air compressor. This is the latest form of the already well-known Reavell quadruplex compressor, which, though the essential features of the original machine have been retained, has been modified so as to make it suitable for running at higher speeds.



A New Air Compressor.

This machine has four cylinders arranged radially in a circular casing. Each cylinder is fitted with a trunk piston and the four connecting rods are all driven by a common crankpin. The casing contains an annular space forming a water jacket, through which the cylinders pass. Each cylinder forms what is in effect a separate single-acting compressor delivering air into a common delivery passage, and as the compressor is designed to run at a high speed a practically uniform stream of air is given out.

The compressor has no suction valves, air being admitted to the cylinders by means of ports in the piston which coincide with similar ports in the top of the connecting rod during the suction stroke, and at the end of the suction stroke the piston uncovers ports cut through the cylinder wall, thus making direct communication between the cylinder and the inside of the casing, which is arranged to form a suction chamber.

Power Generation for Docks and Harbours.

Economies of Steam Accumulators.

The steam accumulator, when intelligently used and operated, can be responsible for quite a considerable economy in power, as all the fluctuations in steam demand can be taken care of automatically. There is no fall in the pressure and consequent slowing up on the engines and machines, which is most important. The trouble is that the boiler of the present day performs two functions—generation and storage of steam, while the use of a steam accumulator means that the boilers can be worked at a steady evaporation so that the firing, and the operation of the accessory plant, such as the super-heaters, can be adjusted for the maximum efficiency, while the steam accumulator deals with the fluctuations in the demand, and stores up the surplus steam during periods of lowered demand.

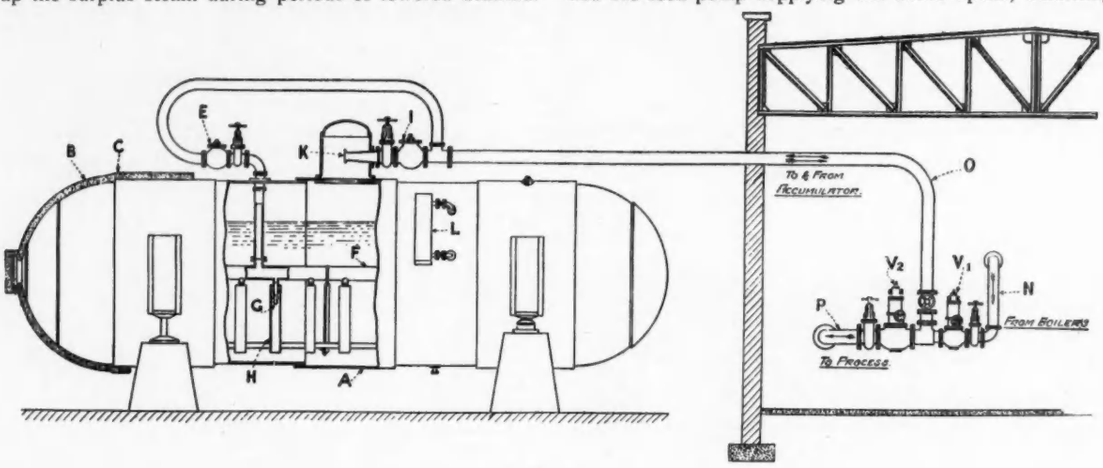


Fig. 1.

The Ruths accumulator, which is the best known in this country, consists of a large steel cylinder filled up to about 90 per cent. of its capacity with water into which surplus steam from the boiler plant is blown, the accumulator discharging during periods of extra load demand. Also, the boiler plant operates at a slightly higher pressure than the accumulator, and the large amount of water in the latter, under full pressure, provides the storage, that is to say, more steam is given automatically when required by the re-evaporation of part of the water in the accumulator, due to the lower pressure. Further, the accumulator can be made of any size, although one to two hours steam supply is the usual figure. The operation of the accumulator will be understood from the diagram in Fig. 1.

Under conditions of normal operation of the boiler the circulating pump runs normally, the feed pump passing the same quantity of water as is being evaporated. In the event of a decreased demand on the steam line the pressure tends to rise, and the automatic regulator between the live steam line and the feed pump supplying the boiler opens, admitting more steam to the feed pump and increasing its speed and the quantity delivered. The consequent rise of water level in the boiler causes an overflow of water to the accumulator and the low temperature water admitted to the boiler tends to lower the pressure. As the demand for steam increases the pressure tends to fall, with the result that the boiler feed pump is slowed down while evaporation in the boiler continues. At the same time, water which is at full boiler temperature and pressure is circulated from the accumulator, flowing to the boiler and back to the accumulator.

In this way the water level in the accumulator continues to fall at the exact rate at which it is being evaporated, but during this period of excessive evaporation, the boiler is fed with water at boiler temperature and pressure, and consequently only the latent heat to convert this water to steam at the same temperature has to be added. When the period of excessive steam demand is passed, evaporation again becomes normal, the pressure regulator admitting water from the feed pump, restoring the water level in both the boiler and accumulator.

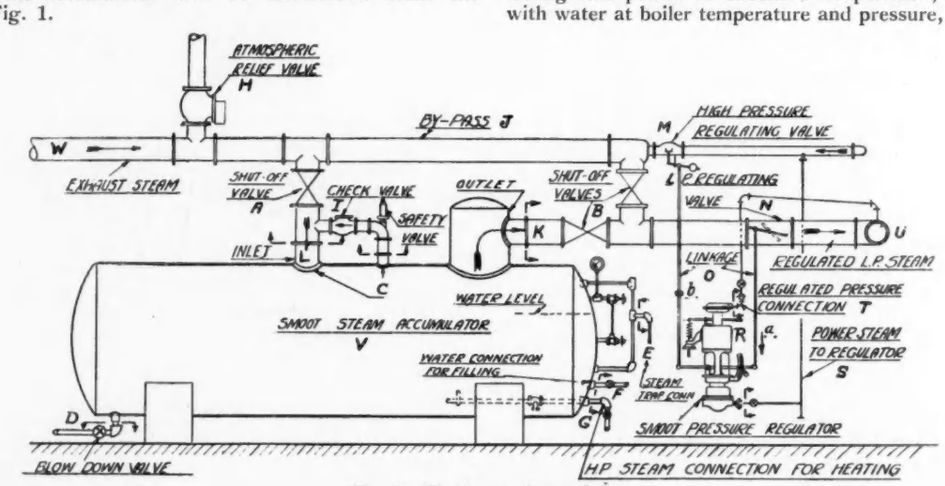


Fig. 3. The Smoot Accumulator.

Distinct from the system of falling or variable pressure accumulation is the constant pressure system. This has many advantages in those cases where single pressures are used. Under this heading comes the Kiesselbach system.

The Kiesselbach system consists essentially of a storage tank in which water is accumulated and maintained at both boiler temperature and pressure. The accumulator is in direct contact with water in the boiler, by means of an overflow pipe from the boiler which maintains constant water level, and the water is circulated from the boiler to the accumulator and from this storage vessel to the boiler by means of a circulating pump. The normal feed water pump is controlled by a pressure

It will be seen that this system has the advantages of constant rate of firing irrespective of the demand for steam, and the maintenance of constant combustion conditions regardless of the steam output. Moreover, constant boiler pressures can be maintained under the heaviest fluctuations of load. Not only may the full output be maintained on a reduced number

(*Continued on page 32.*)

North-East Coast Notes.

THE outstanding feature of October was the commencement of the operation of the second portion of the Local Government Act, 1929, with its derating scheme for industrial concerns. What will be the exact effect on the trade of the North-East Coast, time alone will reveal, but that the general result will be beneficial seems assured from the one fact alone that it has led to considerable reductions of rates and dues.

On the Tyne the Commissioners will receive £18,000, and not only have they passed this on, but have added £12,000 to it to make a cut in various dues which will total £30,000 in a full year. Newcastle Corporation will obtain about £5,000, and this, too, will be utilised in benefits for the users of their quays. On the Wear the Commissioners have reduced the rates on coal and coke shipments by 3d. per ton. All this will, undoubtedly, assist in the trade expansion of which there are such welcome signs at present. Reference to these concessions have previously been made in these columns.

At Blyth, which now claims to occupy the proud position of being the fourth largest coal exporting river in the British Isles, a new scale of dues payable has been adopted. It may be noted that the bunker and refuge due was reduced in February, 1928, to pre-war level, and now all other dues are lowered.

	Per Reg. Ton.
Harbour Dues—	
Coastwise rate	5d.
Baltic and Scandinavia	6½d.
Mediterranean and other places	11d.
Refuge and bunkers	1¼d.
Coal Dues—	
Large	2¼d.
Goods Dues—	
Reduced to pre-war level.	

Further advantages which traders will gain under the Derating Act are rebates the London and North-Eastern Railway have announced they are prepared to allow in respect to dock charges. One of the chief concessions in which the Tyne district is concerned is in respect of coal, coke and patent fuel shipped at the Company's staiths. The rebate amounts to three-farthings per ton on shipments at Dunston and Tyne Dock. The rebate on pit props and mining timber is 10 per cent. of the wharfage rates; on imported iron ore 1½d. per ton, and on defined classes of iron and steel shipped at the port 4d. per ton.

There is a large import timber trade at Tyne Dock and a considerable quantity of iron ore is unloaded there every week, and thus these sections will be benefited by the derating rebates.

It will be of interest to note that the Cowpen Coal Company are adding the newest type of conveyor and anti-coal breaker to their staiths at Blyth. Built when 10-ton wagons were in use, these staiths were not adapted to 20-tonners, and often delay occurred because it was impossible to discharge the long wagons at high tide. The addition of modern conveyors will expedite loading and enable the company to deal with the coal at any state of the tide.

Instances of Quick Work.

The London and North Eastern Railway have just issued some rather striking figures as to quick bunkering at Blyth during the latter part of September, and as 15 instances are given within nine days it is obvious that smart work at the Company's staiths there is the usual rule rather than the exception. They give the following cases in which the vessels were able to sail on the same day as their arrival at Blyth:—

Sept.	Vessel.	Commenced.	Finished.	Tons.
22.—	Thrift ...	6. 0 a.m.	10.15 a.m.	504
23.—	Mons ...	3.45 p.m.	8.15 p.m.	805
25.—	Ayresome ...	10.45 a.m.	2.45 p.m.	837
25.—	Edenwood ...	7.15 a.m.	12.45 p.m.	1,044
25.—	Thrift ...	8.30 a.m.	12.35 p.m.	511
25.—	J. Charrington	12.45 p.m.	10.45 p.m.	2,099
25.—	C. Galleor ...	2.30 p.m.	8.15 p.m.	1,081
25.—	M. Mallonie ...	7.50 p.m.	11. 0 p.m.	768
26.—	Haven ...	10.15 a.m.	12.30 p.m.	88
26.—	Vectis ...	2. 0 p.m.	10.10 p.m.	1,512
27.—	Thrift ...	10. 0 a.m.	2.10 p.m.	500
28.—	J. Marie ...	8.30 a.m.	noon	408
28.—	Lunan ...	12.45 p.m.	2.50 p.m.	379
28.—	E. Friar ...	5.30 p.m.	9.30 p.m.	322
30.—	Rowanburn ...	1. 0 p.m.	4.15 p.m.	400

From ports all along the coast there are reports of similar good work, a notable case being the loading of the ss. "Marsden" at Tyne Dock. The vessel commenced to load on Saturday, September, 14th, at 11 a.m., and was completed at 10 p.m. that night having taken about 4,200 tons of cargoes and 120 tons of bunkers on the same day. The steamer "Whitemantle" arrived in South Docks, Sunderland at 1 p.m. and sailed at midnight after taking on board 2,300 tons of Lambton and Silksworth coals. The actual working time was only 5 hours 10 minutes, the loading being accomplished at the rate of 457 tons per hour.

East End of Jarrow Development.

An important stage in the development of the East End of Jarrow has been reached with the completion of the private railway from the London and North-Eastern Railway, Newcastle—South Shields line to the Mercantile Dry Dock and the Shell Mex oil installation.

To facilitate the quick dispatch of oil, powers were obtained last year to continue the line across High Street and down to the dry dock and the oil installation, and by the completion of the work the Shell Mex Company will be able to dispense with the underground oil pipes.

It was appropriate that when Smith's Dock Co. opened their new dock at North Shields on October 1st (to which reference was made last month), it should admit the biggest repair job they had had since the war. The vessel was the oil tanker "Mitra," of the Anglo-Saxon Petroleum Co., which is to undergo a second No. 1 Lloyd's Survey, and it is expected the work will take some three months to complete.

Trade Still Expanding.

The latest reports made to the Tyne Improvement Commission show that local trade at the docks and on the river is still expanding. It is stated that the river dues for July and August (the latest to hand), showed an increase of £11,000 over the corresponding period of last year. The coal shipments continued good despite troubles as to tonnage shortage from time to time. For the eight months of the year the shipments totalled 13,037,000 tons, an increase of 2,494,238 tons, compared with the same period of last year.

The Commission approved a proposal for the covering in of the water space at the north end of the new Riverside Quay, Albert Edward Dock, and for an extension of the Transit Shed at a cost estimated by the engineer at £20,735. The secretary reported that he had made an application to the Unemployed Grants Committee for a grant in aid, and that he had now received an intimation that the Committee approved the scheme for grant purposes subject to the usual conditions.

Personalia.

Mr. Douglass Burnop Mail, who was well-known in shipping circles, died recently in Newcastle. Mr. Mail was 77 years of age, and a native of Sunderland. During later years he carried on business as a marine surveyor and consultant, and was responsible for a considerable amount of work for Lloyd's Salvage Association.

Mr. George Pickering, Lloyd's shipping and engineering surveyor at Jarrow, has been appointed a similar position at Hong Kong, and will leave England shortly. Prior to coming to the Tyne about 18 months ago, Mr. Pickering was Lloyd's surveyor at Southampton.

Finnish Navigation Statistics.

Statistical data published by the Finnish Board of Navigation show the number of vessels and their registered tonnage that entered and cleared at Finnish ports during the first eight months of this year to be:—

	ENTERED.		CLEARED.	
	No. of Vessels.	Reg. Tons.	No. of Vessels.	Reg. Tons.
With cargo ...	2,593	1,465,885	3,718	2,622,354
In ballast ...	1,817	1,425,063	725	221,655
Total ...	4,410	2,890,948	4,443	2,844,009

The following particulars are given of the registered tonnage of vessels carrying cargo that entered and cleared during the corresponding period of the three previous years:—

1928	1,516,801	2,496,057
1927	1,343,358	2,774,321
1926	1,016,946	2,177,937

The share falling to Finnish and foreign vessels in the carrying of merchandise, both inward and outward, during the eight months of the year, is given as follows:—

	Finnish.	Foreign.
Inward—		
General cargo (tons)	238,438	397,812
Cereals (tons)	5,984	68,529
Coal (tons)	132,535	444,912
Machinery, iron, etc. (tons) ...	2,818	32,590
Other goods (tons)	70,368	238,883
Outward—		
Paper (tons)	123,581	333,312
Sawn timber (stds.)	88,453	601,553
Spars (English ft.)	521,275	2,977,570
Sleepers (cub. metres)	1,630	16,687
Pulp wood (cub. metres)	74,474	971,195
Pit props (English cub. fathom) ...	3,751	170,436
Poles (English ft.)	50,129	610,421
Firewood (cub. metres)	18,637	8,841
General cargo (tons)	121,768	53,547
Other goods (tons)	44,302	94,284
Other timber (stds.)	13,095	10,378

The Port of Ronneby, Sweden.

Ronneby. Air View of the Outport Ronnebyredd.

The Entrance to the Harbour at Ronnebyredd, seen from the North.

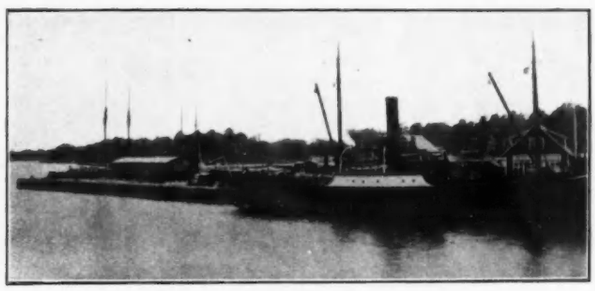
The Port of Ronneby, Sweden.

General.

THE town of Ronneby is situated in the province of Blekinge in southern Sweden on the Ronneby river, about 4 kilometres from its outlet into the Baltic. The harbour proper is at the mouth of the river.

Ronneby is mentioned as a town already in the 13th century. In 1680 it lost its town privileges and was reduced to a market-place under Kristianopel. After the foundation of Karlskrona Ronneby was transferred to the jurisdiction of this new town. In 1882 it was reinvested with its former town privileges, and the following year, having been made the seat of a new custom-house, it obtained the rights of a staple town.

The population, which in 1822 numbered 1,797, had grown to 5,815 in 1927.

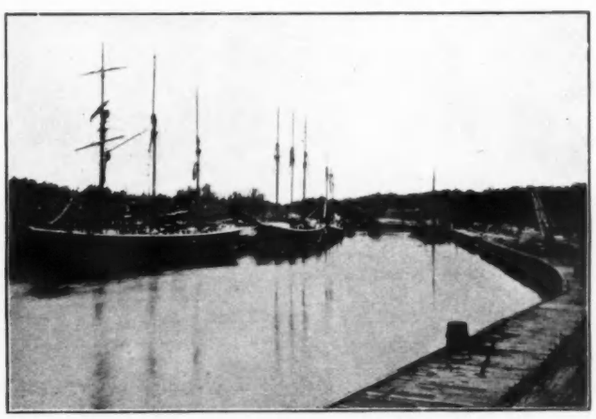


Ronnebyredd, Western Harbour Quay.

Ronneby has ever since the 17th century been renowned as a health-resort and is greatly frequented by summer visitors who benefit both by its mineral springs and by the natural beauty of its surroundings.

Industry.

Important industries, obtaining their power supply from falls in the Ronneby river, have grown up in the town and its vicinity. As the town, however, is situated at the fall furthest down the river the agricultural communities higher up have attracted a greater number of industrial establishments than the town. Within the town limits there are some ten industrial works employing 800 hands and having an annual production value of approximately 5 mill. kroner. Foremost amongst them is Kockums Emaljerverk, owned by Kockums Järnverks Aktiebolag, employing some 765 hands and office workers. This company manufactures cooking, table and toilet utensils of enamelled steel. The greater part of the output is exported. To be mentioned further are a leather factory (Aktiebolaget Läderfabriken Welting) with about 35



The Inner Harbour at Ronnebyredd, seen from the South.

employees, Kockums flour mill, owned by the Kockum company, bakery, dairy, electric power station, waterworks, and railway workshop. In the vicinity of the town are brick-yard, quarries—the province of Blekinge is one of the two principal stone manufacturing centres of Sweden—joinery factories, pulpmill, papermill, ironworks with about 500 employees (Kallinge järnverk, owned by the Kockum company) and bottling factory, operated in connection with the Ronneby mineral spring. Further inland, along the river and the railway, there are other industrial establishments.

Communications.

Ronneby has railway connections: (1) with the interior by the Ronneby—Bredåkra railway, continued by the Tingsryd—Växjö line; (2) with the coast district by the Blekinge Coast Railways, Karlskrona—Karlsham—Sölvesborg—Kristianstad; (3) with the health resort and the port Ronneby roads. All of these railways are under the same central administration, though the Blekinge Coast Railways and the Växjö—Tingsryd Railways are independent undertakings having the same gauge, 1.067 metres.

There are regular sea connections between the outport and Stockholm, Göteborg and intermediate Swedish ports, as well as Oslo and Hamburg.

Harbour.

The volume of traffic in Ronneby harbour is shown by the figures for 1926, when 996 vessels, totalling 260,000 tons net, of which 36,450 tons in foreign trade, arrived and departed.

Principal goods discharged are iron, coal and coke, 12,400 tons in 1926, steel 7,100 tons, stone 3,100 tons, fertilizers 2,200 tons, salt and sulphur 1,000 tons, grain 1,000 tons, and cattle food 800 tons. Principal goods loaded are pulp 18,100 tons, iron and steel 5,300 tons, and stone 4,500 tons.

The harbour comprises the town harbour in the river, 1.8 metres deep, and the outport, the Ronneby roads ("Ronneby-redd"). In the outport the quay on the eastern shore of the river is continued by a pier, 135 metres long, built out in a south-westerly direction. The total quayage here is 825 metres. For a distance of 130 metres from the pier-head the depth is 5.3 metres at mean water and 4.8 metres at ordinary low water. The remainder has a depth of 5—3.6 metres at mean water. On the east side of the pier, and alongside a quay which is constructed on the shore in continuation of the pier, there is a lineal quayage of 151 metres with a depth of 5.3 metres at mean water. On the western shore of the river-mouth there is a quay, equipped with railway-siding, 188 metres long and having a depth of 5—3.6 metres at mean water.

A channel 500 metres long and 70 metres wide, and with a minimum depth of 5.3 metres, has been dredged to the pier-head. The middle of the channel is indicated by the red lights on the pier and on the shore bearing in one line. A mooring-buoy is anchored on each side of the channel. Further out, in the Ronneby bay, the bottom is clay with a depth of 7—9 metres.

The town has spent considerable sums on its harbour, but these expenses have been fully justified by the ever-increasing traffic which have led to ever greater demands on the harbour.

Important Contract.

Messrs. Vickers-Armstrongs, Limited, Barrow-in-Furness, have received a most important contract for the machinery for a large cement plant in the Far East, viz., the Green Island Cement Co., Ltd.

The new works will consist of two units, each having a capacity of 1,000 tons of cement per week, giving a yearly output of approximately 100,000 tons.

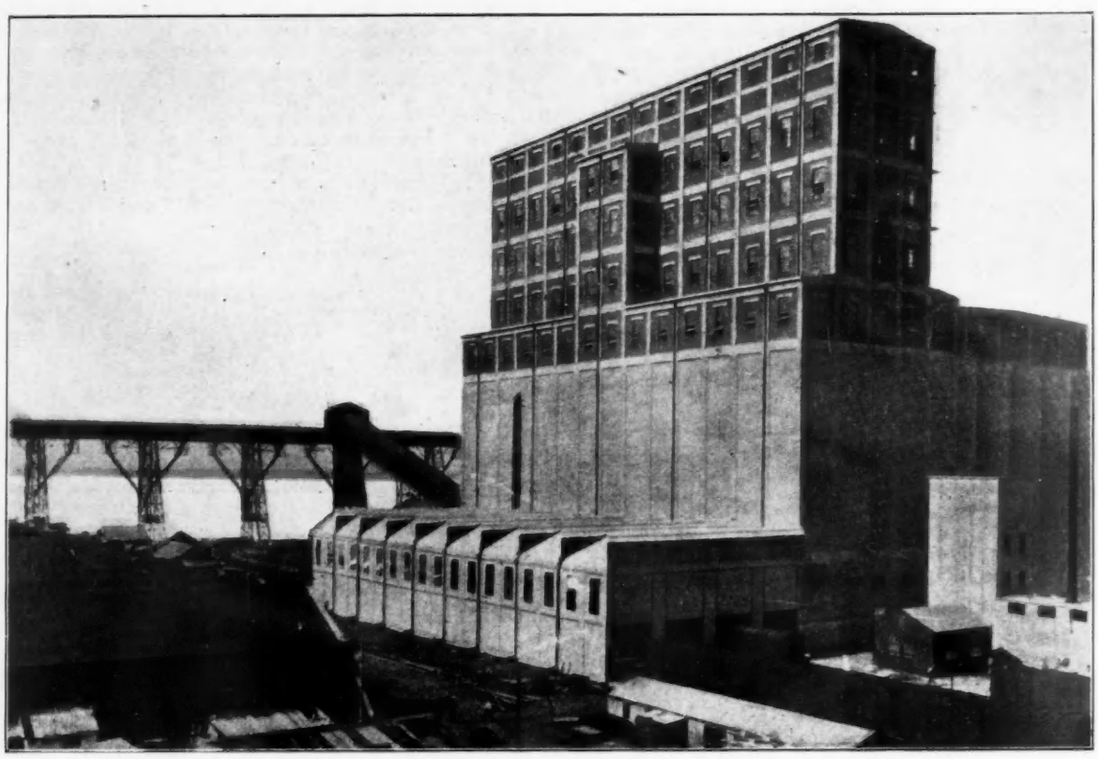
Kiel Canal Traffic in September.

A report received by the Department of Overseas Trade from His Majesty's Consul-General at Hamburg states that the volume of traffic through the Kiel Canal during the month of September, 1929, showed a decrease of about 7 per cent. as against the preceding month, 5,244 vessels aggregating 2,396,589 passing through the Canal, or 638 vessels and 182,136 n.r. tons less than in August. The traffic during September was, however, about 11 per cent. greater than in September, 1928.

Of the 5,244 vessels, 2,709 were registered as seagoing steamers aggregating 2,188,963 net reg. tons, and of these 2,613 were cargo and passenger steamers aggregating 2,182,914 net reg. tons, 143 tugs, of 5,798 net reg. tons and 3 fishing steamers of 251 net reg. tons. There were also 2,070 sailing vessels of 111,858 net reg. tons; 221 lighters and barges of 67,027 net reg. tons and 194 naval service and pleasure vessels of 28,741 tons. The vessels were loaded as follows:—48 with passengers, 28 with cattle, 337 with coal, 126 with stone, 66 with iron, 670 with timber, 636 with grain, 70 with ore, 866 with goods in bulk, 1,045 with piece goods, 80 with general cargo, 1,272 empty or in ballast.

Personal enquiries regarding shipping and transport matters should be made at the City Office of the Department (Shipping and Transport Section), 73, Basinghall Street, London, E.C.2.

South African Ports.



Durban's Grain Elevator, the largest in South Africa, has a capacity of 42,000 tons.

The Graving Dock at Congella, Durban, is one of the world's largest structures of its kind, and was opened by H.R.H. The Prince of Wales in 1925.

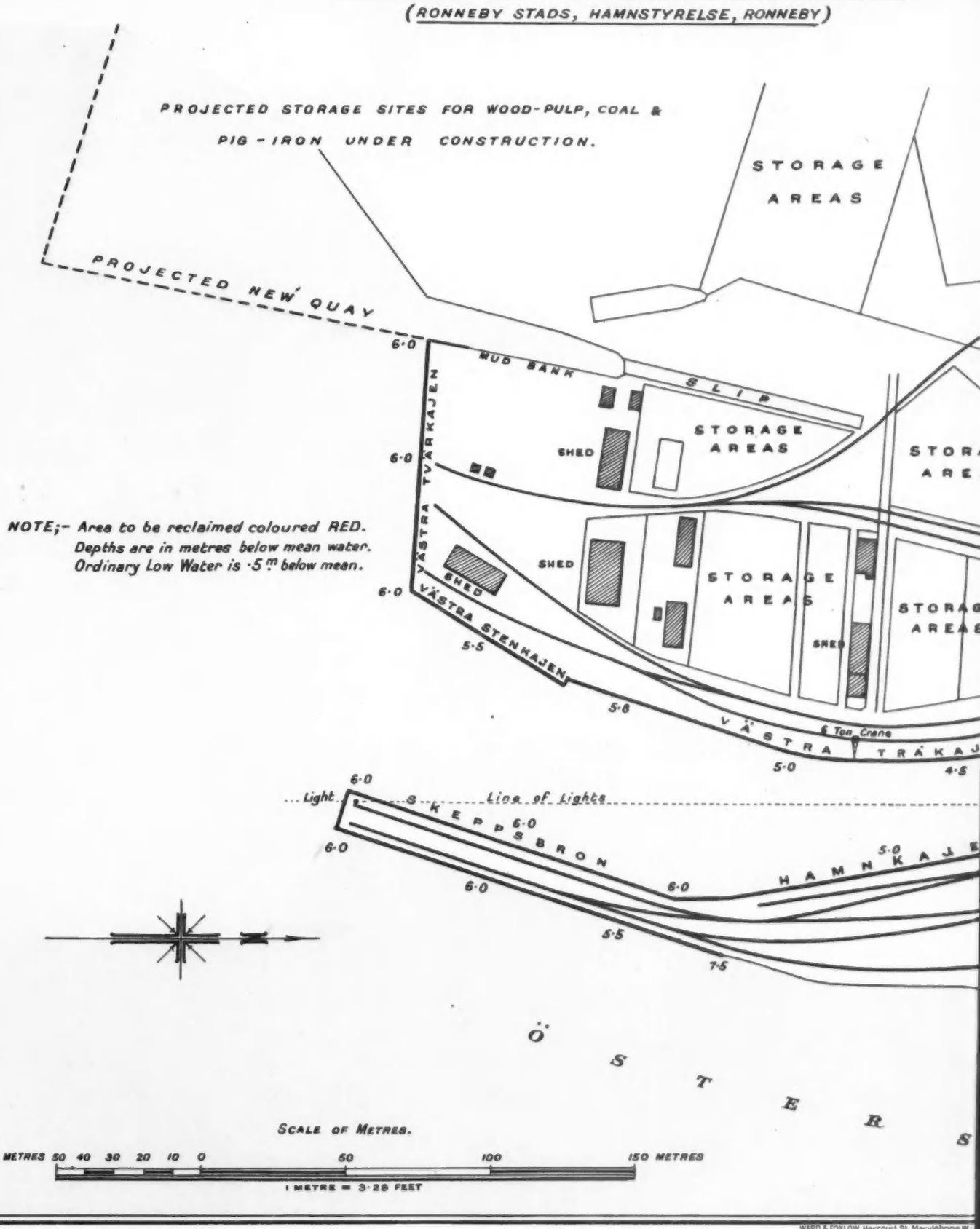
SUPPLEMENT TO THE DOCK AND HAR

PORT OF RONNE

(S W E D E N)

UNDER THE JURISDICTION OF THE RONNEBY HARBOUR BOARD.

(RONNEBY STADS, HAMNSTYRELSE, RONNEBY)



Scale of Metres.

METRES 50 40 30 20 10 0 50 100 150 METRES

1 METRE = 3·28 FEET

WARD & FOXLOW, Harcourt St, Marylebone W.

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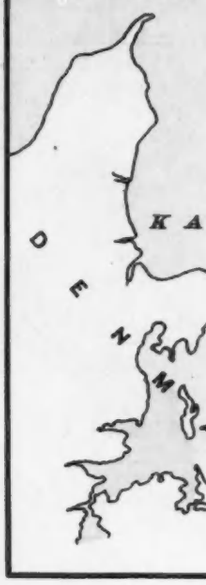
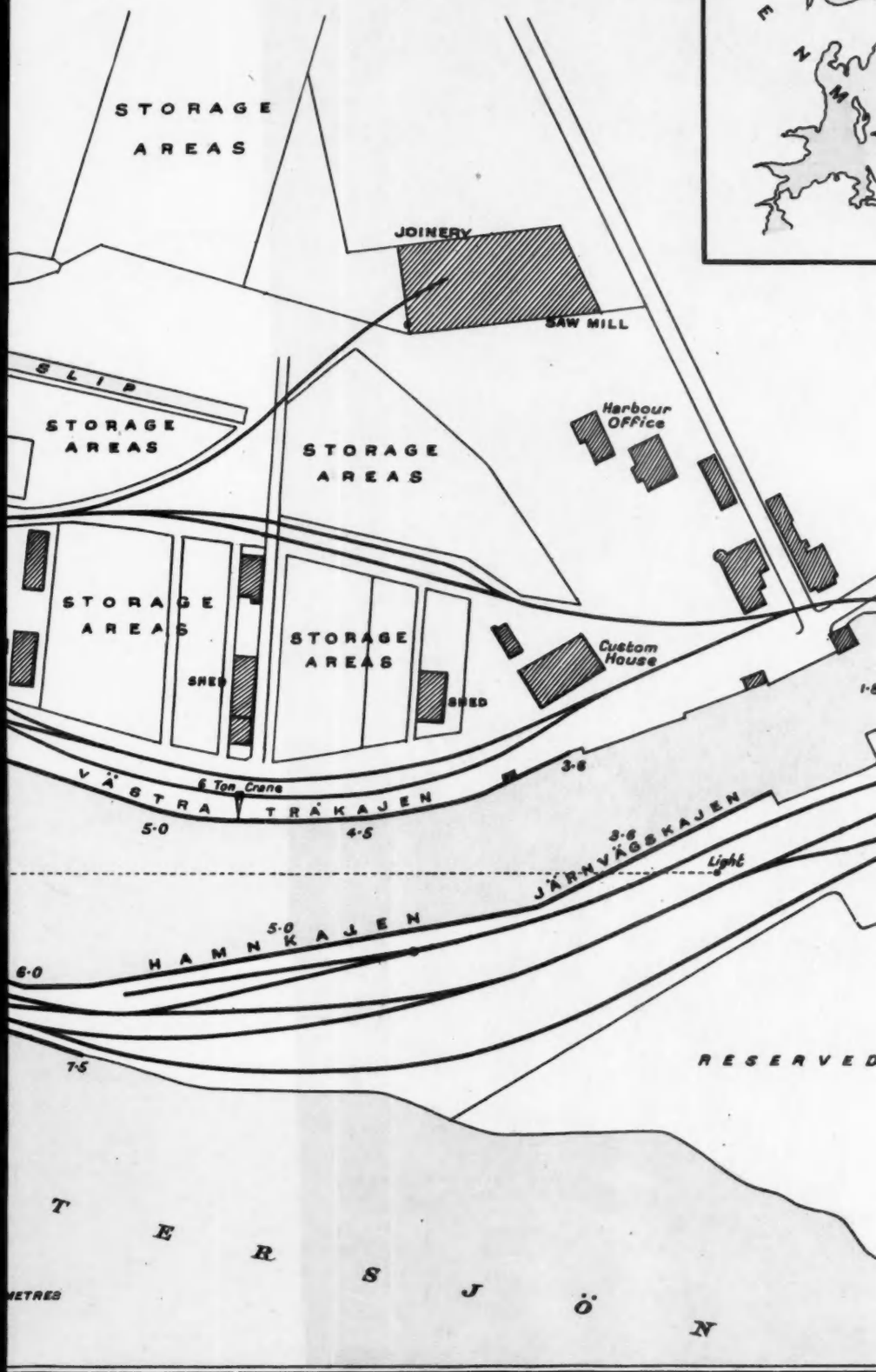
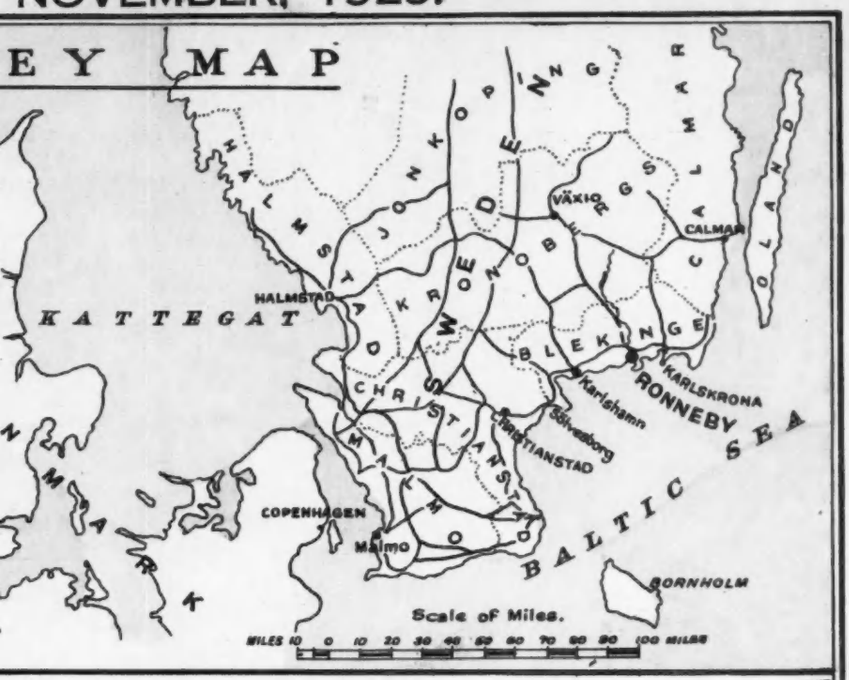
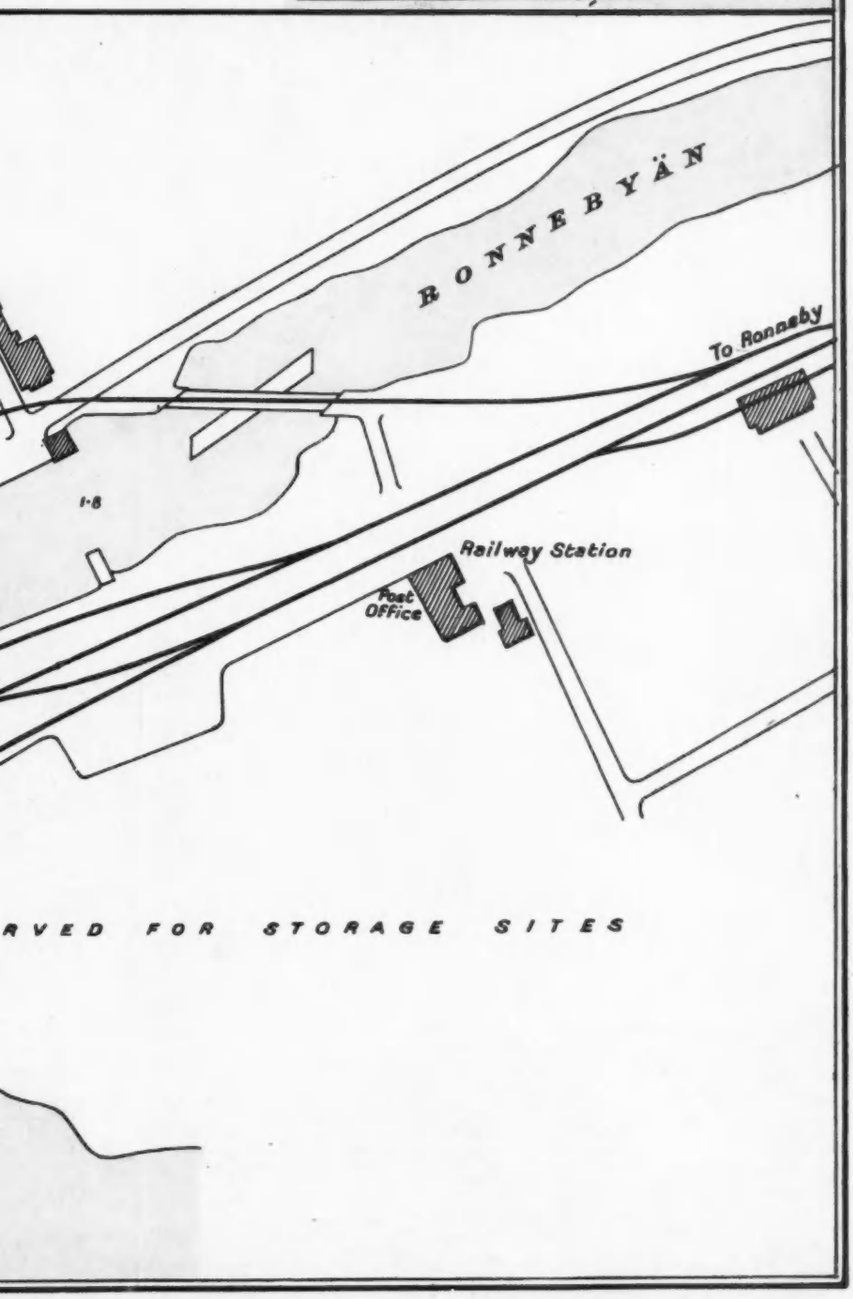




WARD & FO W. Harcourt St, Marylebone, W1. 5438.

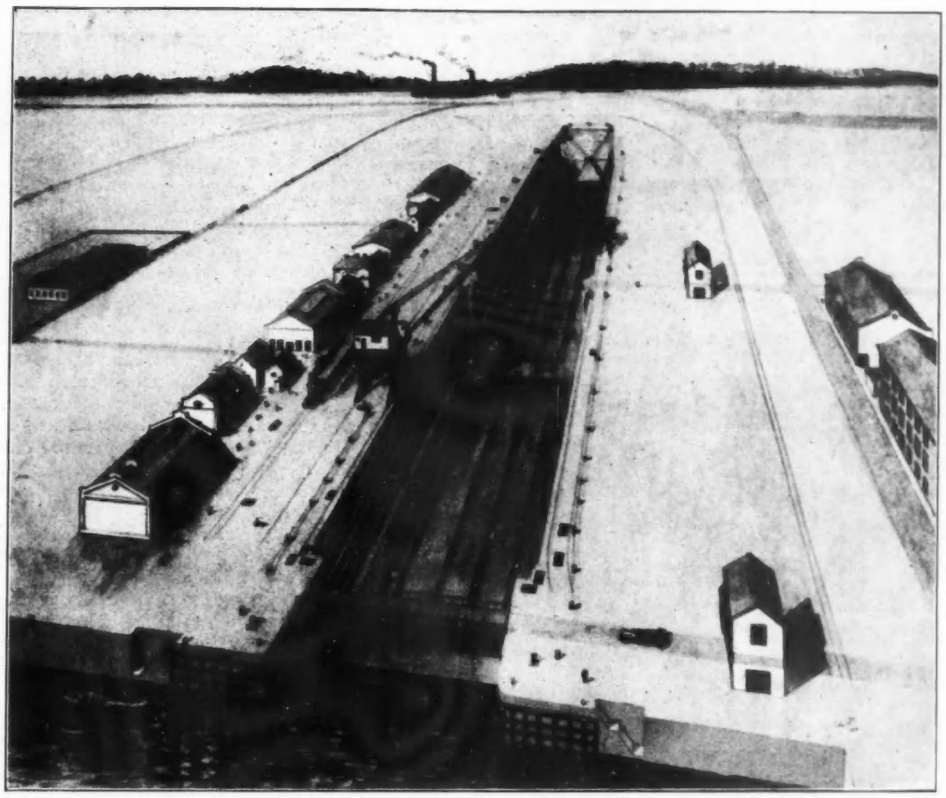
NOVEMBER, 1929.





RVED FOR STORAGE SITES

South African Ports: Their Working and Organisation.



Perspective of the New Graving Dock, Durban.

IN the construction of South African ports very little assistance has been afforded by nature. The country is practically devoid of navigable rivers, there being therefore no internal transport by water, and possesses very few naturally sheltered sites with ample depth of water capable of being used as harbours. The construction of harbour works has consequently presented many great difficulties requiring no little ingenuity to overcome.

The harbour works at Table Bay are projected out into the ocean, defying natural difficulties as it were, and require to be protected from the effects of tempestuous seas by a breakwater constructed at tremendous cost.

Port Elizabeth, which in 1820 was a small fishing village with a military post, is now a flourishing seaport with a large import and export trade. It is an open roadstead and is exposed to south-easterly gales, which frequently blow with great violence. But in spite of this, landing and shipping operations have been very successfully carried on by means of lighterage between vessels in the roadstead and the jetties. To cope with the increasing trade of the port, a number of harbour improvements are being carried out.

East London is situated at the mouth of the Buffalo River, and, as in the case of most of the harbours, rivers, and lagoons on the sandy coast of South Africa, there was a sand bar which required to be removed before the river became navigable. In fact, at one time there was a wagon track across the river where it is now navigable for large ocean-going steamers. Most of the vessels visiting the port can now enter the river to land and ship cargo at the wharves, a working depth of 26-ft. L.W.O.S.T. having been achieved at the entrance. East London is a conspicuous example of the construction of a port where difficulties of an unusual nature have been successfully overcome.

At Durban within an incredibly short period what was once a shallow lagoon has been transformed into a first-class port. The largest ships trading to South Africa can enter with ease and safety, there being an average depth of 37-ft. L.W.O.S.T. at the entrance of the outer channel and 31-ft. in the inner channel, the depth at the deepest berths being 38-ft. 6-in. In February, 1860, it is recorded that there was only 12-in. of water on the bar, and in July of the same year 2-ft. In 1876 the average low water bar depth was 4½-ft., and in 1887 10½-ft. The following observations by the East India Company about the year 1685 indicate the opinion of the Company regarding the lagoon which is now Durban Harbour:—

> "The East India Company would have taken possession of this fertile land (Terra de Natal) years past, but for seeing at the mouth of the port a reef or sand bank that no galliot without touching could get over without danger, so that a small vessel could not safely go in there."

It is to the powerful dredger and the enterprise and perseverance of individuals who had the interests of the port at heart that Durban owes its position as one of the first-class ports of the world.

Port Administration and Operation.

In the transportation services of a country the harbours play a most important part, for they are the portals through which flows all traffic to and from overseas, and it is therefore essential that they should be organised and operated as efficiently and economically as possible. This will be best appreciated by those who have had experience of a badly managed port, with inadequate accommodation and facilities, resulting in congestion and disorder, endless complaints of delays to ships and cargo, and numerous claims for missing and damaged goods. In port administration throughout the world there is infinite variety and dissimilarity is the predominant feature. South Africa is the only country in the world where all the harbours are entirely under state control.

In endeavouring to meet the difficulties in connection with port administration in different parts of the world one notices a distinct tendency in the direction of reducing the number of authorities exercising control of each port, and also in the direction of co-operation between ports situated on a common seaboard for the purpose of co-ordination in regard to port working and collaboration with a view to the adoption of uniformity in respect of dues and charges as far as possible. In South Africa these aspirations in regard to unity in the control of the ports and uniform working arrangements and tariffs have long since been achieved.

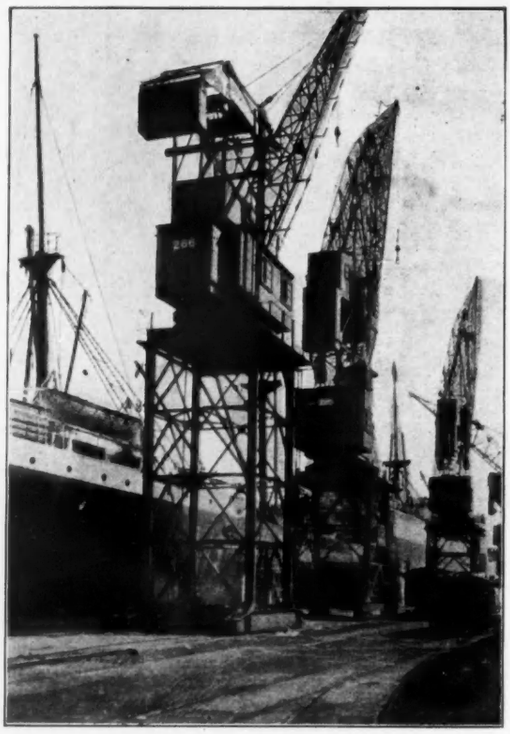
Co-ordination of Railway and Harbour Services.

At the time of Union those in authority in South Africa took a far-sighted view, and advantage was taken of the great opportunity which presented itself of bringing both the railways and harbours of the whole country under one control,

South African Ports—continued.

thus co-ordinating all traffic operations at the ports and on the railways. It was realised that the problem at the ports is a railway as well as a shipping problem, the three links of transportation being railways—port—ship, and vice versa. Where railway and port operations are under one control traffic can, of course, be more promptly dealt with, obviating the delays and congestion in harbour transit sheds which are experienced at many ports where there is divided control.

The organisation and working of South African harbours has been evolved on a plan suitable to the country's requirements, and it is doubtful whether it is always fully realised how successfully the whole of the transportation system, including the port terminal facilities, is organised on a completely co-ordinated plan which is theoretically efficient and has been tried out and proved to be sound in practice.



Giant Electric Cranes on the Wharf at Durban.

The Wharf equipment consists of the following Cranes: 1 50-ton Hydraulic Stationary, 1 10-ton Hydraulic Travelling, 4 10-ton Steam Travelling, 9 3-ton Hydraulic Travelling, 26 4-ton Electric Travelling, 11 3-ton Electric Travelling, 1 3½-ton Electric Mobile. Additionally, there are fitted on the wharf 29 Electric Capstans, used for shunting trucks. Supplementary to the Shore Cranes is a Floating Workshop fitted with a 15-ton Crane.

Uniform Harbour Regulations and Tariffs.

One of the advantages of the whole of the harbours of the Union and South-West Africa being under one control is that it enables uniform harbour regulations and dues and charges to be adopted for all the harbours, South Africa being unique in this respect that the same working regulations and tariff apply at each port of the country. All shipping and commercial interests therefore receive equal treatment in regard to the charges levied for the services rendered, and the application of harbour dues and charges and accounting requirements are greatly simplified.

There is no wasteful competition to secure traffic through one port at the expense of another, and traffic flows through its natural channels by the most suitably situated ports to its destination, each port receiving its legitimate share according to trade capacity and development of its natural hinterland.

Harbour Services performed by the Administration.

There are six principal and thirteen minor harbours under the Administration's jurisdiction. The ports of South-West Africa—Walvis Bay and Luderitz—together with the railways in the mandated territory, are controlled as part of the railways and harbours system of the Union.

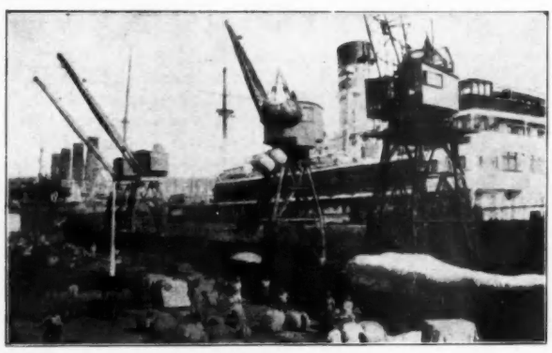
The harbours at which pilotage is compulsory are Walvis Bay, Capetown, Knysna, East London, and Durban. As soon as a vessel comes within the defined area at each harbour nearly all services to the ship are undertaken by the Administration and her cargo is looked after by the railways and harbours staff from the time it is released from the ship's slings until it reaches its destination either by rail or road transport. The problem presented at South African ports is not complicated by a multiplicity of authorities and conflicting interests. The railway terminal facilities and the port operations being under one control results in smooth and economical working which it is impossible to achieve to anything like the same extent where there is divided control.

The principal and auxiliary services at the harbours for which the Administration is responsible are lighthouse services and other aids to navigation (the lighthouses and harbour lights maintained by the Administration extending from Swakopmund on the West to Cape St. Lucia on the East Coast), pilotage, tug services and salvage operations, berthing and unberthing of ships, dry-docking facilities, lighterage, landing, and delivery, collecting and shipping of cargo, cartage, construction and maintenance of harbour works, dredging, licensing of pilots, inspection and licensing of craft, and the licensing of various agents.

Expeditious Despatch of Ships and Cargo.

The combined railway and harbour organisation provides the utmost facilities for expeditious despatch of both ships and cargo. There is no economy like the economy of despatch where ships are concerned, and with them indeed "time is money." Unnecessary costly delays are damaging to the reputation of a port and often result in increased freight having to be paid, which is also detrimental to the port and commercial interests. Every hour's delay means loss of interest on the capital expenditure and of depreciation charges, reduced earnings of the ship, and loss of outlay on coal, stores, crew's wages, and provisions.

It has been calculated that, including loading, discharging, bunkering, and voyage repairs, the proportion of time per annum spent in port by a timber trader is from 50 to 60 per cent., by a tramp steamer 50 to 55 per cent., by a cargo liner 30 to 40 per cent., and by a motor tanker 15 to 20 per cent. It is therefore obviously of the first importance in efficient harbour working that ships be turned round as quickly as possible so that the profits of the voyage may not be consumed during idleness in port. The amount of money that may be wasted owing to vessels being unnecessarily delayed in port would in some cases represent a substantial dividend on the capital invested in the ships so delayed. Keen competition in the shipping world to-day and the great value of ships make it all the more necessary for delays in port to be minimised as much as possible. Of course, the vast improvements in port equipment and handling facilities enable vessels to be discharged and loaded with far greater rapidity to-day than in the past. For instance, the handling of grain by the elevator system and the loading of coal by mechanical appliances has resulted in great saving of time and of labour required for these operations.



Cranes at Durban Harbour.

Development at South African Harbours.

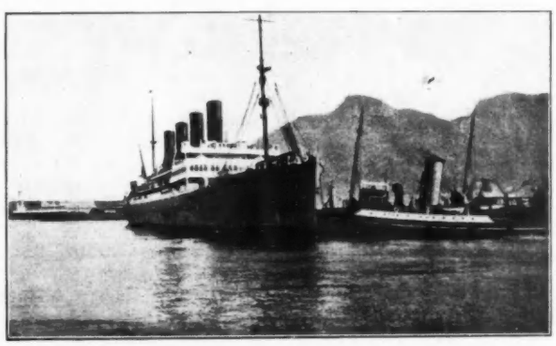
Continuous development is taking place at South African harbours, provision being made for present requirements and adequate preparation for the future in order to be able to cope with the ever-increasing traffic through the ports, which is indicated by the following statistics for the last ten years:—

Year ended 31st March	Vessels Arrived.	Gross Tonnage.	Total Tonnage Landed Shipped and Transhipped.
1920 ...	3,377	14,020,120	4,419,685
1921 ...	3,881	16,265,438	5,295,658
1922 ...	3,700	17,616,940	5,276,303
1923 ...	4,294	20,753,409	5,500,004
1924 ...	4,586	22,432,645	6,897,841
1925 ...	4,725	22,751,552	7,138,829
1926 ...	5,232	23,684,758	8,239,776
1927 ...	5,266	24,186,194	7,890,456
1928 ...	5,560	26,131,461	8,216,266
1929 ...	5,590	26,036,844	8,645,098

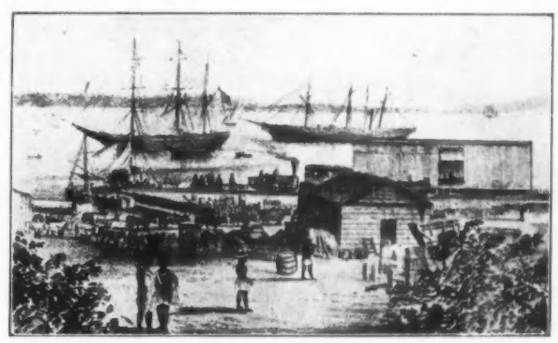
South African Ports.

A Jetty at Port Elizabeth. The Campanile commemorating the landing of the 1820 Settlers is seen in the picture.

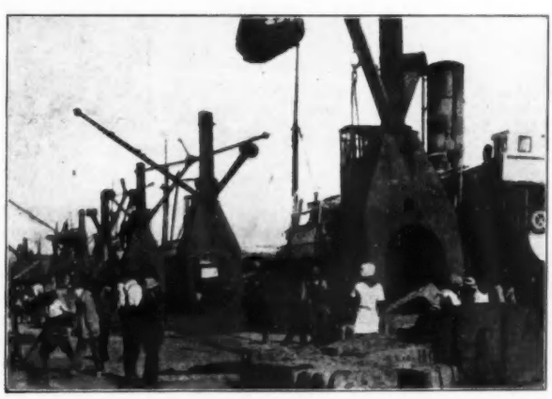
East London.



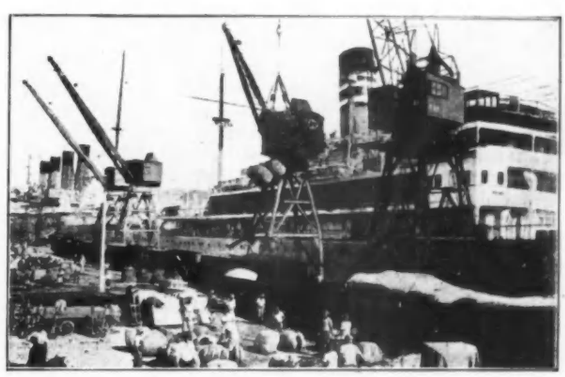
A Dwarf lends help to a Queen. One of the Table Bay Harbour tugs nosing the bows of the "Windsor Castle" away from the wharf.



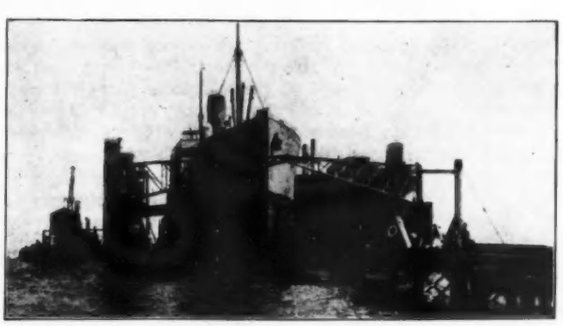
The first railway station in South Africa: The Point, Durban, some 70 years ago. Vessels, typical of the time, background the infant station.



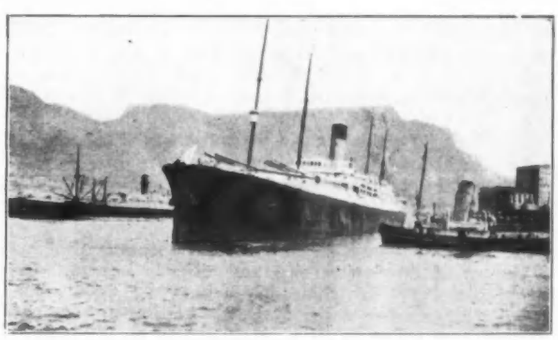
Cranes at Durban Harbour.



An everyday scene in Durban's busy dockland.



Floating Dock, Durban.



A large steamer heading out from the shadow of Table Mountain. The huge grain elevator is seen on the right of the picture.

South African Ports—continued.

Harbour Advisory Boards.

At each of the six principal harbours of the Union and South-West Africa there is a Harbour Advisory Board constituted under the Railways and Harbours Act of 1916, consisting of seven members representing the respective interests of the Government, local, municipal, commercial, and shipping interests and payers of harbour dues and charges. These Boards advise the Administration upon matters affecting the interest or welfare of the respective harbours, the construction and upkeep of harbour works, the landing, shipping, and transhipping of cargo, the charges upon goods and upon shipping, and the regulations affecting importers, shippers, and the trade of the port generally, and upon any other harbour matters referred to them for advice.

South African ports occupy a unique and unrivalled position situated as they are on the ocean trade routes between Europe, America, and Australasia and the East, and added to this advantage is the capacity to provide bunkers and coal cargoes from the rich coalfields of the hinterland. There is, no doubt, therefore a great future for South African ports with the increasing trade and commerce of the country. The logical and practical lines on which the ports are organised will obviate some troublesome problems that might otherwise have had to be grappled with in the future. Visitors to South Africa with world-wide experience of shipping and harbour management overseas have been keenly interested in and have expressed admiration for the Union's system of publicly owned railways and harbours, directed as it is by broad considerations of national policy.

Developments at Italian Ports.

THE Italian Government, continuing its programme of harbour enlargements and improvements, has made arrangements for the construction of a large harbour with about 3,000 metres of quayage in the Port of Cotrone on the Eastern coast of Calabria with the purpose of developing industries which are growing larger in that district from day to day, and which include several chemical fertilizer factories, etc. The Italian Treasury has allotted a credit of 20 million lire for this purpose. Another port which is now receiving the attention of the Government is the Trapani Harbour where there are also many foreign interests owing to the exports of salt. Mr. Ove C. L. Vangesten, Norwegian Minister at Rome, has written to the press that his country is largely interested in the development of the Port of Trapani, but that he thinks the port's chief problem is the question of carriage of the salt from the mines to the port. In connection with these remarks it is understood that the Government has granted a credit of 14 million lire for the construction of several quays and piers with a connection to transport the salt to the port, while arrangements are being made for the construction of a mole where the new liners which the Societá di Navigazione Florio will employ from Naples to Palermo with a weekly extension to Trapani and Tunisi may land passengers. On the other hand, the question of the transportation of the coal trade from the Molo di Ponente in the Marittima Dock in the Port of Venice to the new dock at Marghera is being fully considered, and has been the object of a conference which has been held recently at the Provveditorato del Porto at Venice when the question as to how it would be possible to finance the transfer was gone into, and it is hoped that it will be possible to increase the general merchandise trade at the Marittima Dock when the coal trade has been transferred.

The problem of developing connections between Italy and India is being greatly considered, and it is understood that there is an opportunity to start a fortnightly service with 12,000 gross tons luxurious speedy ships in order to attract trade from Continental Europe to India towards Italian ports. No definite decision has been taken yet as some people are in favour of the construction of entirely new ships while others are considering the opportunity of transferring some of the liners which are now on the North and South American route to the Indian route as soon as the new 40,000 tons super liners will be put into service, but taking into consideration that orders for the boats have not been given, and now that the White Star Line has decided to delay the construction of the Oceanic in order to better ascertain the most advantageous type of propelling machinery, most likely the Italian owners will follow the same course although it is known that the Lloyd Sabaudo has been and is in favour of the turbine propulsion. In the meantime, however, the Societá Veneziana di Navagazione a Vapore has signed an agreement with the Government for the increase of speed on the Indian route, and for the regular call at Rangoon, in order to ensure Italian ports the chance of developing rice and oilseeds imports, and has ordered four 8,000 ton ships driven by Fiat Diesel engines of 4,400 b.h.p. ensuring a speed of 13.6 knots per hour to these vessels.

A new oil bunkering station is being built at Venice by the Societá Anonima Italiana Importazione Olii, while the Raffineria Olii Minerali di Fiume, which is working for the Societá Nazionale Olii Minerali, subventioned by the Italian Government, has built two further tanks in order to increase the capacity of its coast bunkering station.

Another feature of interest, in connection with Italian harbour development, is the construction of mechanical loading facilities at Porto Albona where ships are coming from North Europe to load bauxite. While some months ago bauxite was loaded in lighters, now it is possible to load about 1,000 tons per day in a ship.

Total shipping during the first eight months of 1929 included 24,983,868 tons of goods unloaded and loaded with an increase of about 20 per cent. over the period from January to August, 1928. Although figures regarding trade during these eight months cannot be taken as a basis for consideration, yet it may be interesting to examine the following figures referring to the most important goods unloaded at the principal Italian harbours during this period:—

	TONS.				
	Coal.	Wheat.	Cotton.	Oilseeds.	Oil.
Genova	1,994,808	837,581	128,401	153,429	194,434
Savona	1,078,621	—	—	—	137,635
Leghorn	737,291	76,885	2,181	44	26,144
Civitavecchia ...	440,176	2,967	420	—	2,927
Naples	628,704	305,331	6,759	6,310	146,175
Palermo	192,671	27,472	—	218	2,285
Catania	102,425	59,451	—	83	—
*Trieste	290,033	93,080	37,241	115,512	—
Fiume	34,471	1,378	203	—	—
Venezia	867,812	267,168	30,009	—	61,440
Ancona	253,954	23,165	122	248	—
Bari	94,766	49,483	—	79	—

Taking into consideration the arrangements made between the Italian and the British Governments at the Hague regarding the importation of coal into Italy there is no doubt that this trade will increase, but ports are now in a position to handle even 20,000,000 tons of coal yearly while the annual imports do not exceed 12,000,000 tons at present, while the satisfactory wheat crop will necessarily decrease the imports of wheat with the exception of Genoa and Venice where there is an active inquiry from countries of the hinterland and, as a matter of fact, arrangements are made to cut down freight rates on the railways in order to enhance this trade. On the other hand, the excess of production of wine grapes and olives will necessarily lead to a development of exports from South Italian harbours such as Bari, Catania and Palermo.

Besides the 20 million lire granted by the Government for the development of the Canale dei Navicelli connecting Leghorn with Pisa and thus enabling the development of shipping at that port, where the Ford Car Factory has just been planning to transfer part of their Trieste plant, it appears that under the auspices of the Unione per la Navigazione Interna dell'Italia Settentrionale and the Confederazione Nazionale dei Trasporti Terresti e Della Navigazione Interna, efforts are made to render the River Po navigable during the whole year, and to develop inland navigation between Venice and Milan. Works are in progress to connect the Canale Boicelli, which crosses the industrial zone of Ferrara, with the River Po. At Ferrara the Canale Boicelli is already connected with the Po di Volano terminating in the Adriatic. No less important works are in progress at Ravenna in order to enlarge the Canal connecting that port with the sea.

* Statistics for Trieste cover only the period from January to June, 1929.

Notes from the North.

Overhauling 200-ton Crane.

The Mersey Docks and Harbour Board 200-ton crane Mammoth, has been cleaned and overhauled in the Canada Graving Dock. The hull was encrusted with millions of mussels, estimated to weigh at least 50 tons.

Drifting Buoy.

A buoy which was found drifting 40 miles south-west of the Island of St. Kilda in the Outer Hebrides, has been brought into Fleetwood by a fish trawler. The buoy was found to be of a large can shape, with a flat top, together with a staff on which were three lights, one of which was electric, worked by dry batteries. As the buoy was a danger to navigation it was decided to haul it on board and bring it back to port. Difficulties were experienced in hauling the buoy on board by means of the winch, and it was necessary for the crew to dismantle part of it before the operation could be carried out. The buoy weighed three tons and was made of steel and there were 30 fathoms of heavy anchorage chain attached to it.

Foreshore Gravel.

According to the annual accounts of the Fleetwood Corporation, 17,042 tons of gravel were sold from the foreshore last year at an average price of 5s. 9.41d. per ton. The net surplus per ton, after deducting expenses, income tax, etc., was 2s. 5.13d. After charging to the gravel account the cost of constructing the new lagoon embankments, £1,720, the surplus for the year was £346. At the end of March last, the Council had in hand on this account the sum of £16,558. Since January 1st, 1926, when Fleetwood commenced to sell gravel from the foreshore in large quantities, principally to the Fylde Water Board, nearly 130,000 tons have been sold. The Council's block-making works made a gross profit of £116 last year, but loan charges totalled £935 and the year's working consequently resulted in a net loss of £818, thus reducing the balance in hand from £1,496 to £678. Ferry profits (gross) fell last year from £1,689 to £1,338, and the net profit was £1,062 compared with £1,410 the previous year. Capital expenditure on the ferry now stands at £18,208. The outstanding loan debt is only £2,647, leaving a surplus of assets over liabilities of £15,560. Last year the ferry steamers carried 658,602 adult passengers.

Fleetwood Sea Defences.

At the Ministry of Health enquiry at Fleetwood into the application by the Council for sanction to borrow £20,497 to purchase land in Fleetwood with a view to the construction of sea defence works, it was stated that already the Council had found it efficient to erect a groyne at a cost of £700 on the foreshore which was to be purchased for the protection of an outfall sewer. Except for a distance of approximately 200 yards, the character of the defence works would be much less costly than those now on the point of completion. These works would consist of a concrete apron and a promenade somewhat similar to that in front of the Marine Gardens with which it would be connected.

Councillor G. M. Robertson, J.P., said it was absolutely necessary that the Council should have control of the foreshore all round.

The question of groyning the coast was involved in the purchase and if the Council had possession of the land they could carry out groynage works which would be necessary to protect the land in addition to the sea wall. They thought more about efficient groyning than anything else for protection.

Inter-Port Rivalry.

The General Trade Committee of the Liverpool Chamber of Commerce has had before it a letter calling attention to the fact that from the 1st October new concessions are being granted by the Manchester Ship Canal Company to vessels discharging part cargoes at Manchester and suggesting that representations be made to the Mersey Docks and Harbour Board to revise and improve their concessions to vessels discharging part cargoes at Liverpool. It was resolved that the matter be submitted to the Mersey Docks and Harbour Board for consideration.

Medal for Port Traffic Official.

Mr. J. F. R. Wiggins, of the traffic department of the Mersey Docks and Harbour Board, has been awarded the Water Transport Gold Medal by the "Dock and Harbour Authorities' Association," for a paper read before the Institute of Transport entitled, "Labourage Policies of the Port Authorities." Mr. Wiggins entered the service of the Dock Board in 1915. Last June he passed the final examination of the Institute of Secretaries.

New Mersey Dock Works.

Members of the North Western District of the Institution of Municipal and County Engineers at a meeting held at Port Sunlight, heard an interesting address by Mr. Percy Parr, B.Sc., Assoc.M.Inst.C.A., on "Development and Works in the Bebington and Bromborough District" and afterwards visited Messrs. Lever Bros. new million pound dock at Bromborough now in course of construction. Mr. Parr said that one result of Messrs. Lever Bros., enterprises was the construction of the Bromborough Dock and the reclamation of 100 acres of foreshore. That dock would most certainly have a very stimulating effect upon the developments which would take place in the district, so much so that the development of almost the whole of the river front within the district would be for commerce and industries and the Council had dedicated that land under the town planning scheme for those purposes. The other industries situated in the district were on the river frontage and included Messrs. Price's Patent Candle Company, Ltd., Messrs. Brotherton's Rainbow Dye Works and Planters' Margarine Factory. Those four industries found work for over 7,000 employees.

Roofing a Dock Roadway.

One of the roadways in the northern section of the Liverpool Dock Estate is to be roofed. This proposal emanates from the Traffic Committee of the Mersey Docks and Harbour Board which has sanctioned the erection of a roof, 350-ft. long, over the roadway at the west end of the north side of the Brocklebank Branch Dock, at an estimated cost of £5,342. It is also intended to provide a new cross-over road in the railway lines at the south side of the Langton Graving Dock at an estimated cost of £440.

Pump Dredger Sold.

The twin-screw sand pump dredger "Brancker" was put up for auction at Liverpool on September 27th. Built of steel at Barrow in 1893, the "Brancker" has a hopper capacity of 2,900 tons, and during her 36 years' service on the Mersey must have removed many hundreds of thousands of tons of sand from the channels leading to the port of Liverpool. The bidding started at £5,000 by Mr. John Cashmore, of Newport, Mon., and the vessel was eventually secured by him for £6,500. It is understood that she is to be broken up.

More Accommodation for Grain Cargoes.

The unusually large concentration of wheat in the Port of Liverpool last month meant large earnings for the warehouse owners.

Wheat is generally stored, of course, in specially designed warehouses, but so great was the pressure that the facilities of the Grain Storage Company were exhausted and further accommodation was required. Wheat arrivals during the month of September totalled 1,031,000 quarters, which is believed to be the record importation for any month—certainly for nearly 30 years. The normal arrivals at this period would amount to 400,000 or 500,000 quarters. Arrangements to cope with the heavy cargoes were approved by the Mersey Docks and Harbour Board. The Warehousing Committee submitted to the Board a recommendation approving the arrangements made, as a matter of urgency, for the provision of certain bulkheads, shutes, etc., at the West Shed, Canada Dock, and the sheds and warehouses at the Wallasey Docks, which have been set apart for the storage of grain, at an estimated cost of £5,840. Mr. Edward B. Orme said that normally confirmation by the Board would have been postponed for a week, but the matter was so urgent that the money had already been spent. He was informed that they had in stock at 8 a.m. that day (September 26th), 23,200 tons of wheat. There was space available for 23,800 tons and already 25,200 tons had arrived, most of which would go into their warehouses. If they had not acted as they had done, they would have been in a very awkward position.

The Board also approved a recommendation of the Works Committee authorising the engineer, as a matter of urgency, to arrange for four box hoppers to be provided for use in connection with the storage of grain at the West Shed, Canada Dock.

New Bridge.

Work is proceeding on the erection of a new bridge across the Birkenhead Docks at Duke Street. This will be the first electrically-controlled on the Dock Board's Estate on the Cheshire side. It will have a single span of 100-ft. and will be raised and lowered by two electric motors, each of 45 h.p. The roadway will be 23-ft. 6-in. in width.

Notes from the North—continued.

Turned Down.

Liverpool City Council has declined an application for permission to instal an automatic signalling apparatus at either the North Docks or Sandon Docks Goods Station where railway lines cross Regent Road.

To Build a Sea Wall.

Proposed improvements at Laxey by the erection of a sea wall on the foreshore have been approved by the Manx Tynwald. The Attorney-General explained that they proposed to build the walls by bags of cement, piled bag upon bag and filled in behind with material.

Ship Canal Traffic.

From the Manchester Ship Canal Company we have received the traffic statistics applying to the month of September. These are again satisfactory and indicate a slight increase in traffic over September, 1928, the respective figures being £106,107 and £105,086. In the first nine months the revenue from traffic using the canal was £1,079,808 compared with £1,058,962 for a similar period last year. Thus there is a balance of £20,846 on the right side. Manchester traders have been showing considerable enthusiasm for the cause of developing more ship canal traffic, particularly in the direction of encouraging direct shipments to and from Manchester.

Fleetwood Foreshore.

Fleetwood Urban District Council is seeking powers to purchase the foreshore rights, extending a quarter-of-a-mile below high water mark. The Council regards it as important that they should own the foreshore as otherwise there might be undesirable developments, but the main object of having the right is to construct adequate sea defence works for the protection of the district from flooding. The estimated costs of the sea defence works on the land to be purchased is £10,000. The value of the land will be increased by being made safe from sea inundations, and a considerable portion will be available for building purposes.

Mersey Tunnel Progress.

Birkenhead has again scored first in the matter of the new Mersey Tunnel. It was here that the first section of the full-sized iron-lined tunnel was built, this section being inspected by the joint committee some time before the borings between Liverpool and Birkenhead met in mid-river. It is on this side, also, that the first section of the reinforced concrete roadway, which will be used by vehicular traffic in the tunnel, has now been completed. The section which has been finished is only about 30-ft. in length. The road is supported from below on massive concrete columns the space between the columns and the iron-lined sides being used as airducts. Messrs. Basil Mott and J. A. Brodie, joint engineers of the Mersey Tunnel Scheme, reported to the October meeting of the Tunnel Committee that £905,905 had been spent on three contracts, or 31.9 per cent. of the total of £2,833,067; 208,950 cubic yards had been excavated or 33.8 per cent. of the total of 618,500 cubic yards and 1,230 men are employed. The engineers state that on Contract No. 1 the enlargement of the original headings to the full-sized tunnel is proceeding at seven working faces. Of the cast-iron lining there are now in place 28,642 tons or 54.5 per cent. of the total 52,600 tons in the contract. Ninety-nine per cent. of the upper half of the cast iron lining is now in place. There is only one more gap to be closed and the work on this upper half is now proceeding at one face only. Work is in progress on the lower half of the cast-iron lining at six faces.

A 600-ton Floating Elevator.

Messrs. Crichton and Co., of Saltney, have built to the order of the United Grain Elevator Company, of Liverpool, a 600-ton floating pneumatic grain elevator which is adaptable to the discharging of the largest vessels which enter the Liverpool docks, and is the eighth of its kind built for the firm. It is capable of discharging at the rate of 250 tons an hour and a feature of the vessel is that the grain is automatically weighed while being discharged. It is fitted with four suction and two discharge pipes. Although having a displacement of 600 tons the huge elevator only has a draft of 6½-ft. Three tugs were required to tow the elevator from the Dee to the Mersey. The work of moving it was a difficult task of navigation because of the ever-changing condition of the Dee channel and the weight and height (a 100-ft.) of the elevator. It was towed to Liverpool in two stages and the work was undertaken by Messrs. Rea, Ltd., of Liverpool. The first part of the journey from Saltney to Queen's Ferry Bridge—the most difficult of the whole journey, owing to sankbanks in the river—a distance of three miles, took one-and-a-half hours. On the elevator nearing the Queen's Ferry Bridge the leading tug gave a blast on its siren, and the bridge quickly opened. Although the bridge was only open a matter of a quarter-of-an-hour, the traffic from North Wales to Liverpool and Birkenhead quickly accumulated and over 200 cars and motor cycles were held up.

L.M.S. Dock Works.

The first section of the £100,000 extension scheme undertaken by the railway authorities at Fleetwood Docks is now complete and ready for use when the necessity arises. It is known as the " Herring Arm " and is situated at the far end of the third wing. The width of the stage has been almost doubled, affording greater facilities for the landing, sorting and packing of fish. A few days ago the new steam tug boat " The Clevelys " which is included in the scheme, arrived at Fleetwood from Lytham. " The Clevelys " will be engaged mainly on dock work and is to replace the " Fylde," which will probably be transferred to Barrow.

Isle of Man Protective Works.

Port Erin (Isle of Man), Commissioners appear to have reached a deadlock with the Harbour Board on the question of the proposed erection of a protective wall. The Harbour Board insist that groynes should be erected as part of the scheme to prevent further silting of the harbour, but the Commissioners are resolutely opposed to the erection of any such groynes. From the Government Department concerned, the Commissioners have received a letter stating that the Harbour Board were entitled to impose the condition that groynes should be erected, if the widening of the road was likely to cause silting of the harbour. Following the erection of an experimental groyne by the Harbour Board, the cost of erecting further groynes would only fall on the Commissioners if silting eventuated. The estimated cost of the scheme is £3,760 of which sum a total of £2,064 would be received as a grant from the Government.

River Dee Improvements.

At the October meeting of the Dee Conservancy Board, Mr. C. P. Smith read correspondence which had passed between himself and the Ministry of Transport in respect of a £150,000 scheme for improving the navigation of the Dee. The purport of the Minister's reply was that he had no fund available for aiding a scheme, but he was prepared to receive a deputation. The Minister suggested that the only available source from which to obtain financial assistance was from the Unemployment Grants Committee.

Mr. R. Matthewson urged that a deputation should be sent so that they could see if the Ministry were prepared to help them in carrying out the proposed scheme to deepen the river and make it navigable in the interests of the trade.

It was resolved to send a deputation to interview the Minister.

Ulverston Channel.

A scheme for restoring the Ulverston Channel to a position which would make shipping again possible at Ulverston, is suggested by the North Lonsdale Iron and Steel Co., Ltd., in a letter to the Ulverston Chamber of Trade. The letter was accompanied by a report made by Mr. J. Campbell Boyd, consulting engineer to the North Lonsdale Iron and Steel Company, which had also been forwarded to the secretary of the Chamber of Shipping, London, which body had referred it for consideration to their Visiting Committee and Port Facilities Committee.

In this report Mr. Boyd states that Ulverston, owing to the channel having changed its course, is now a port without means of access to or from the open sea, and was likely to remain so unless definite works were undertaken, not only to force this navigation channel back to the western side of the estuary, but also to permanently fix it there. The report adds: " I am of opinion that the constructing of a training wall commencing at a selected point at the railway embankment on the eastern side of the viaduct and running in a line or direction more or less south-westerly from about half-a-mile to about three-quarters-of-a-mile in length would have the desired effects. Such a wall would consist of rubble lime stone, which can be obtained from an adjoining quarry within a mile of the proposed works. Therefore, approximately 90 per cent. of the cost of these works would be direct labour and, in my opinion, it comes entirely within the category of the Government's requirements for the relief of unemployment, especially as it would be the means of restarting the shipping facilities previously enjoyed by the town and district of Ulverston." The letter and the report were fully considered by the committee and it was decided to support any scheme that would have the effect of restoring the channel to the Ulverston side of Chapel Island in the Levan estuary, and that the Ulverston Urban Council be asked to give their support in every way possible.

Developments on the Humber.

Queen's Dock Estate.

The negotiations of the Hull Corporation with the London and North-Eastern Railway Company for the purchase of the Queen's Dock Estate at Hull have culminated in an agreement by which the Corporation will acquire the dock and adjoining quays, warehouses and property for the sum of £117,000. According to the report of the Special Committee having charge of the negotiations the purchase price of the Dock Estate is £100,000 plus £15,000 for Queen's Dock Chambers and £2,000 for Oriental Buildings, High Street (formerly the first offices of the original Dock Company). The terms of payment are to be as follows: First payment of 10 per cent. upon the signing of the contract for sale subsequent to the Royal Assent to the Bill authorising the sale by the company, £42,000 at the end of the first year, £43,300 at the end of the second year, and £20,000 balance upon the completion of the filling in of the water space. In the event of the Corporation being unable to undertake the filling in of the 25 per cent. of the dock and calling upon the company to do more than 75 per cent. (the proposition agreed), the Company would be willing to do this on terms. This work is to be done within four years. Under the agreement no restriction is placed upon the Corporation as to the user of any part of the solid ground forming part of the purchase, and the eastern part of the dock, but the use of the water space and docks, locks and basins, with the exception first referred to, is to be restricted from the erection of any buildings above the quay level, other than shelters, band stands, public monuments, etc. The Company also give up possession of the freehold of two streets which now give access to the dock. The committee estimate that the making of streets and the laying out of gardens, etc., will cost £45,000, and they express the opinion that the improvement will increase the rateable value of the old town within the docks. It is anticipated that the income to be received from the properties will be such that at no time will the cost to the rates exceed one-third of a penny in the £, while during the first four years the average net cost will be equivalent to a rate of one-seventh of a penny in the £. The agreement came before the Hull City Council on October 9th, when it was confirmed only five members voting against it. Some anxiety was felt by the present users of the Queen's Dock lest their interests should be unduly prejudiced and this found expression at a meeting of the Hull Chamber of Commerce and Shipping when a resolution was passed asking the City Council to defer the proposals until time had been given for consideration of the effect of the abolition of the dock upon commercial and industrial interests. At letter to this effect was sent to the City Council where Councillor F. W. F. Oldfield moved an amendment in almost identical terms which met with little support. The view expressed was that it was a matter for the London and North-Eastern Railway Company to provide alternative accommodation for the fitting out of steam trawlers, etc., and that representations by traders would no doubt receive full and favourable consideration.

The filling in of the Queen's Dock and no dedication of the area to other uses than for shipping will close an interesting page in the history of dock construction. It is the oldest of the Hull docks and was opened to shipping in 1779, and this is probably the oldest of its kind in the kingdom. The water area is 10½ acres in extent and the dock cost £83,355 to build. Originally the only entrance to it was from the River Hull, or Old Harbour, but in later years other docks were built forming a chain connecting with the River Humber at the other end and completely cutting off what is known as the Old Town, which with the River Humber on the south side and the docks on the land side thus became an island. Up to recent years it accommodated the coasting and some of the heavy Continental trades, but latterly it has become obsolete and has fallen into a very bad state of disrepair and has served only to give berths to steam trawlers while being fitted out. The Queen's Dock and several other docks belonged to the Hull Dock Company, but in 1893 passed into the hands of the North-Eastern Railway Company. Some objection has been raised to the project on the ground that it would cause inconvenience to present users of the dock and the lighter traffic which passes through it from the Western Docks to the Old Harbour and the River Hull, but the general view appears to be that the dock has had its day and that a big improvement will be ensured by its disappearance.

Saltend Oil Depot Expanding.

The oil depot at Saltend, Hull, continues to expand. Only recently a second or duplicate jetty with berths in deep water for oil tankers connecting with the installations of the various petroleum companies on the land, by pipe lines, was brought into use. Now, the British Petroleum Company has erected eleven new tanks which will double that company's storage capacity. These are included in the extensions which were on October 8th officially inaugurated by the Lord Mayor of Hull (Councillor Benno Pearlman). After the Lord Mayor had set one of the pumps in motion he opened the door of the new pump house with a silver key presented to him. The additional tanks will hold 14,400,000 gallons of motor spirit, and if used to their full capacity once a year would represent an increase of £500,000 in the value of the output of the company. It is confidently expected, however, that the new tanks will be filled and emptied three or four times during the year and that this will mean a substantial increase in the volume of Hull's trade. Last year over 106,000,000 gallons of petroleum were imported at Hull. There are now 136 storage tanks at the Saltend depot which is the second largest in the United Kingdom. As a precaution against accidents from fire, etc., the tanks now added are surrounded by an embankment of earth. At the recent outbreak at Saltend the conflagration was confined to one tank containing 600,000 gallons of paraffin which burnt fiercely for 26 hours before the sides of the tank fell in and helped to subdue the flames.

Improvements in Dock Accommodation at Goole.

Extensive improvements in the dock accommodation at Goole are in contemplation by the London Scottish and Midland Railway Company and the Aire and Calder Navigation. The estimated cost of the scheme now being prepared is stated to be about £110,000. At a meeting of the Goole Chamber of Commerce, the Secretary (Mr. A. Townend), reported that he had written to ask how soon the developments would be put in hand and the reply of the London, Scottish and Midland stated that while the Company were unable at the moment to give any idea when the work on the scheme would be commenced, their engineers were engaged on preparing the necessary contract drawings with the object of making a start as soon as possible. Work on the scheme of embankment walls to improve the navigable channel of the River Ouse where it enters the Humber Estuary was commenced some time ago and is making good progress. It was emphasised at the Goole meeting that the proposed dock schemes at Goole are ordinary improvements on the part of the railway company and the Aire and Calder Navigation and have no connection with the Government's plans in regard to providing work for the unemployed.

Board of Trade refuse application for increase in Pilotage Rates.

The findings of the Board of Trade in respect to the application of the Humber pilots have met with the reverse of approval among ship owners. In a report made to the Humber Conservancy Board it was stated that the Board of Trade had acceded to the application for the abolition of the ballast rate, but refused the application for a general increase in pilotage rates. The enquiry of the Board of Trade was held at Hull in July when the pilots' application was opposed by the Humber Conservancy, the Chamber of Commerce and Shipping and other bodies, the shipowners urging that the ballast rate should remain and that other rates should be reduced. At the September meeting of the Conservancy Board Mr. Minnitt Good, Chairman of the Pilotage Committee, remarked that the findings of the Board of Trade was an attack upon the whole basis of the pilotage rates. The Board, he thought, should place the River Humber on the same footing as the River Tyne and give them non-compulsory pilotage.

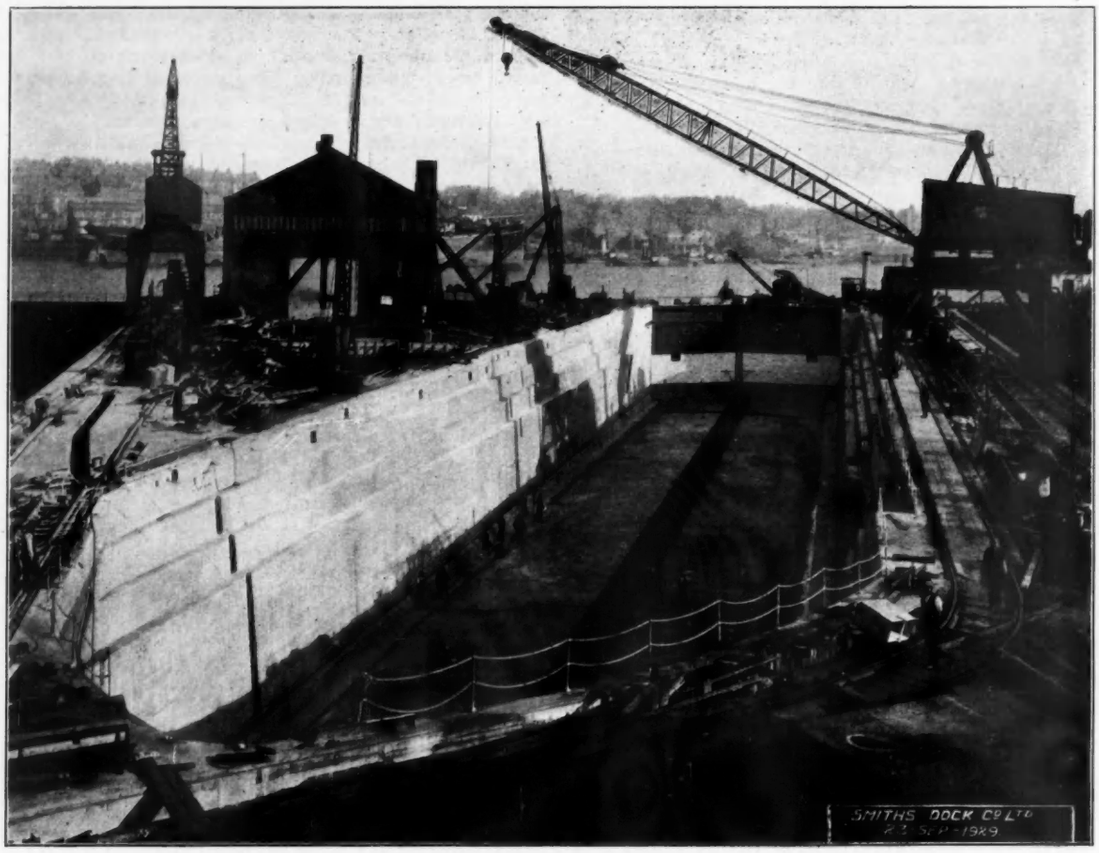
Satisfactory Reports at Bridlington.

At the annual meeting of the Bridlington (East Yorkshire) Harbour Commissioners, Alderman Hakes presiding, a series of reports were presented concerning the working of the harbour under the newly-constituted authority, and the Harbour Master (Lieut. E. Taylor) was complimented on the excellent service he has rendered in this connection. The Chairman welcomed Dr. Thos. C. Jackson, Commodore of the Royal Yorkshire Yacht Club, as a new member in succession to Mr. Little, resigned.

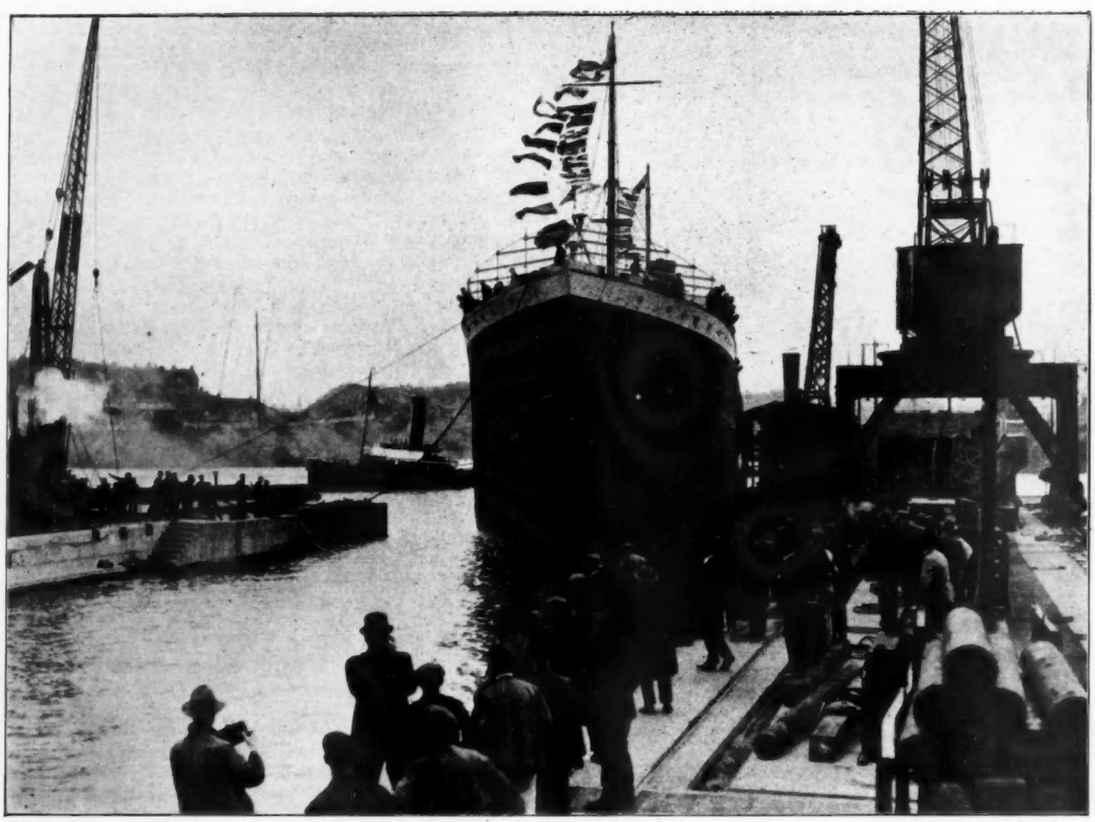
Opening of Hull's New Aerodrome.

Hull's new municipal aerodrome was formally inaugurated amid scenes of great enthusiasm on October 10th, by H.R.H. Prince George, who arrived by aeroplane at the Brough aerodrome in the morning and was the first passenger to leave the municipal aerodrome later in the day when he returned to London. His Royal Highness also declared open the New University College and an Empire Exhibition, these events marking the beginning of Hull's Civic Week. Hull is expected to play an important part in connecting up air services from the West and the North of England with the Continental services radiating from Copenhagen to Hamburg.

Opening of New Graving Dock at North Shields.



The New Graving Dock.



The Oil Tanker "Mitra" entering the New Dock.

Opening of New Graving Dock at North Shields.

Smith's Dock Company, Ltd.

THE LARGE NEW GRAVING DOCK which has been constructed in place of the old No. 5 Dock was opened on Tuesday, October 1st, by the Oil Tanker "Mitra," owned by the Anglo-Saxon Petroleum Company, Ltd. This vessel is to undergo Lloyd's Second No. 1 Special Survey and will occupy the Dock for about 3 months for repairs.

The new dock is of the following dimensions:—Length, 480-ft.; breadth at entrance, 68-ft.; depth on sill at H.W.O.S.T., 24-ft.

The construction of this dock has entailed a tremendous amount of labour. The magnitude of the work involved will be realised when it is stated that no less than 130,000 tons of earth have been excavated and taken to the sea, and 60,000 tons of concrete have been used in building the walls and floor.

The existing pumping installation for No. 6 Dock will be utilised for emptying the new dock, and in order to achieve this purpose it has been necessary to tunnel through 10-ft. of solid concrete into the existing well under the pump room, and fit two new 60-in. sluice valves, one for either dock, hydraulically operated from the pump room. The pumping installation consists of two 40-in. Allen's motor-driven centrifugal pumps, each delivering 27,000 gallons per minute.

The new dock is also connected by a culvert with the existing pumping installation in the No. 4 Dock pump room, so that an additional 40-in. centrifugal pump can be brought into action to assist the other pumps in the event of it being found necessary to empty the dock very quickly, say for the purpose of examination of a damaged vessel. With a vessel of about 10,000 tons in either No. 5 or No. 6 Dock it will be possible to empty the dock in about three-quarters-of-an-hour.

Demolitions.

Before commencing with the new dock, the existing platers' shed, rigging loft, boiler house, compressor house, etc., had to be demolished, and a complete new platers' shed and rigging loft constructed at the head of the yard, which entailed considerable excavation, and the erection of a large new mass concrete retaining wall to hold up the bank side.

These alterations involved the transfer of the whole of the heavy machinery, including plate rolls, four punching and shearing machines, scarphing machine, plate edge planer, beam bender, etc., from the old shed to the new shed.

In spite of the great dislocation in the yard caused by these operations, the general work of docking and executing repairs in drydock was carried out without a hitch, which speaks volumes for the managerial staff and foremen, to whom great credit is due for the splendid way in which the many difficulties encountered were overcome.

The New Platers' Shed.

The new platers' shed is undoubtedly one of the finest and best equipped of its kind in the world, and it is situated in the most ideal position at the head of the three large dry docks. As an example of how this will facilitate the carrying out of ironwork repairs, it has been made possible for a crane to transfer heavy plates from a vessel in dry dock right in to the new shed, without moving its position. A very important innovation in the equipment of the new shed is the provision of two electric monorail cranes, which travel the whole length of the shop, and enormously facilitate the handling of material between the various machines.

New Facilities for Storage of Material.

Another improvement will be the increased facilities for the storage of material, the plate and angle racks being placed on the high ground immediately behind the shop, from whence the material can be lowered straight into the platers' shed by a long jib electric crane. This crane is able to unload the material from the wagons in the street direct into the plate racks, or into the platers' shed, as required, and thus it will be seen that all plates and angles received at the yard go direct into the racks without passing through the works.

The increased facilities afforded by this new platers' shed, coupled with its ideal position, will largely expedite the carrying out of repairs, and result in a great saving of time.

Oil Storage Tanks, etc.

The old No. 5 Dock has been roofed over at yard level with reinforced concrete, and will be utilised as an underground boiler house, compressor house, and oil fuel storage tanks. These oil tanks are sub-divided into seven different compartments, of the following capacity: Two tanks of 250 tons each, 3 tanks of 500 tons each, 2 tanks of 1,000 tons each, making a total capacity of 4,000 tons. Thus it will be seen that the bunkers of different vessels can be kept entirely separate.

The construction of these tanks is entirely of reinforced concrete, and has entailed an enormous amount of labour and material, no less than 35 miles of steel rods and about 15 miles of binding wire being used, of a total weight of 110 tons. In addition, about 60 tons of expanded metal sheets (which would cover an area about 7 miles long and one yard wide), have been used. The work of construction was of a very complicated nature, and involved a very large amount of timber shuttering.

This installation, unique of its kind in the world to-day, will undoubtedly prove of immense advantage for the purpose of storing oil fuel bunkers from oil tankers and cargo vessels undergoing repairs in dry dock. The tanks are connected by pipe lines to the three large dry docks, and the oil will be pumped from the vessel's bunkers into various tanks. After repairs are completed, the oil will be returned on board the vessel by the transfer pump which is installed in the underground boiler house.

In order to facilitate the handling of the oil, a complete installation of heating coils is fitted throughout all the tanks, the steam for which is supplied from the adjoining boiler house.

New Boilermakers' Shop.

An entirely new boilermakers' shop has also been constructed between Nos. 4 and 5 Docks, the upper floor of which contains the boat-builders' shed, carpenters' store, boilermakers' store and canteen.

Electric Welding.

In addition to the existing two petrol and paraffin-driven welding plants which have been running successfully for some years, an entirely new installation has been fitted, comprising two Metropolitan Vickers latest type portable motor generator arc-welding plants.

Plug boxes have been fitted at various points round all the docks, so that the welding plants can be easily transferred from one place to another.

If necessary, the whole four plants can be brought into operation together on the same job, in order to expedite completion.

Fitting Shop Extension.

In order to be in a better position to cope with the ever-increasing amount of repair work, and particularly for the purpose of handling Diesel engine repairs, the existing fitting shop has been very considerably extended, by taking in the old boiler shop and part of the blacksmiths' shop. This extension has been completely equipped with the most up-to-date machinery, comprising various sizes of lathes, Churchill grinding machine, horizontal boring machines, etc., and a large addition has been made to the floor space in the shop. This extension has made an enormous improvement in the facilities for handling heavy engine repairs.

The Institution of Civil Engineers.

Opening Meeting.

The opening meeting of the Institution of Civil Engineers for the Session 1929-1930, will take place on Tuesday, 5th November, at 6 p.m. and will be followed by an Address by William Wylie Grierson, C.B.E., President, and presentation of medals awarded by the Council. The President will receive the members in the library after the meeting.

Kelvin Medal, 1929.

The Chairman and members of the Kelvin Medal Award Committee announce that the presentation of the medal which has this year been awarded to M. Andre Blondel, of France, will be made by Sir Ronald MacAlister, of Tarbert, Bart., K.C.B., Principal and Vice-Chancellor of Glasgow University, in the Great Hall of the Institution of Civil Engineers, on Tuesday, the 5th November, at 5 p.m.

His Excellency the French Ambassador will receive the medal on behalf of M. Blondel, whose health does not permit him to travel to London.

Sir Brodie H. Henderson, K.C.M.G., C.B., President of the Institution of Civil Engineers and Chairman of the Award Committee, will take the chair.

Tea will be served in the library of the Institution immediately following the presentation.

The Port of New York.

Latest Details issued by the Bureau of Commerce.

Value of Commerce.

The latest available figures issued by the local office of the United States Department of Commerce show that exports through the Port of New York have continued their upward trend which was interrupted in May and resumed in June. Exports for the month of July, 1929, amounted to $168,880,000 as compared with $147,591,000 for July, 1928. This represents a gain of 14.4 per cent. as against 6.4 per cent. for all ports of the United States.

Imports in July, 1929, continued their uninterrupted upward trend since the beginning of this year. The total for July, 1929, amounted to $166,191,000 as compared with $149,391,000 for July, 1928, representing an increase of 11.2 per cent.

An analysis of the commodities exported in the first six months of 1929 shows that the largest increase in dollar value was made by automobiles and parts, which increased in the six-month period by over $50,000,000. Next in order of importance was the industrial machinery group, which showed an increase of over $35,000,000. Other large gains were made by copper manufactures, with a gain of over $10,000,000, and iron and steel manufactures, $9,500,000. Apples increased by $9,300,000, which increase represents almost four and a half times last year's exports.

Declines occurred in raw cotton, which showed a loss of almost $12,000,000 for the six-month period, in leather manufactures, which declined by over $6,000,000. Furs and petroleum each showed losses of about $1,000,000 from the first six months of 1928.

Commerce at Port Newark.

Port Newark experienced a falling off in commerce handled in July, 1929, as compared with July of the past year. In July, 1928, 64 vessels brought in 24,846 tons of cargo and 45,533,480 board feet of lumber, while in July, 1929, 57 vessels brought in 7,977 tons of general cargo and 37,983,000 board feet of lumber.

Grain Exports.

The volume of grain through the Port of New York in June, 1929, showed a decline from that of June of the preceding year, due primarily to a falling off in the movement of Canadian grain through this port.

In June, 1929, there moved through this port 6,954,000 bushels of grain as compared with 7,706,000 bushels exported in June, 1928. The Canadian grain exported in June, 1929, amounted to 6,349,000 bushels as compared with 7,115,000 bushels in June of the preceding year, a decline of 766,000 bushels. The domestic grain exported in June, 1929, amounted to 605,000 bushels, as compared with 591,000 bushels in June, 1928, a gain of 14,000 bushels.

Vessel Movements in Foreign Trade.

Vessel clearances for July, 1929, showed an increase over the preceding July, while vessel entrances were slightly less. The tonnage of vessels entering as well as of those clearing showed increases over the preceding July.

Vessel entrances for July, 1929, were 598 in number, and clearances 593 as compared with 612 and 576 respectively for July, 1928.

The tonnage of vessels entered in July, 1929, amounted to 2,709,120, and those cleared amounted to 2,603,439, as compared with 2,553,989 and 2,439,290, respectively for July, 1928.

Figures recently published by the Transportation Division of the United States Bureau of Foreign and Domestic Commerce as to the trade of the Continental ports of the North Sea for the first six months of 1929, show the Port of New York continuing to lead the other major ports of the world. During the period mentioned the total net registered tonnage of shipping entering the Port of New York was 15,166,000, as compared with 10,108,000 net registered tons for Antwerp, its nearest competitor.

Foreign Steamship Services.

During the past year there has been a marked improvement in the type and number of vessels operating between the Port of New York and South America. This improvement has been brought about by keener competition for the steadily increasing freight and passenger traffic, particularly in the Rio de Janeiro-River Plate trade.

New York State Barge Canal.

The New York State Barge Canal has been used more intensively this year than ever before. It has been announced that about fifty more boats per week over those of last year passed through the Utica Harbour at Lock 20. There is an average of about 250 boats per week passing through the locks, with grain boats leading the procession and pig iron shipments ranking second.

Warehouses.

At the end of June, 1929, the United States Department of Commerce reported that public merchandise warehouses in New York State were occupied to the extent of 77 per cent. of capacity, and those in New Jersey to 78 per cent. of capacity, while for the country as a whole the average occupancy stood at 71 per cent. The figures for New Jersey and the entire United States remain the same as those reported for the month of May, 1929, but the State of New York shows an increase of about 3 per cent.

Through the courtesy of the New York Cotton Exchange, the Silk Association of America, the New York Coffee and Sugar Exchange and the New York Cocoa Exchange, the Bureau of Commerce presents a comparative statement for the month of August, 1929, of stocks in storage of commodities handled by these Exchanges. Stocks of cotton, cocoa and sugar show increases, while silk and coffee have fallen off.

	August, 1929.	August, 1928.
Cotton (square bales) ...	100,989	12,760
Silk (bales)	48,408	50,975
Sugar (bags)	2,431,720	1,943,402
Cocoa (bags)	521,582*	477,553*
Coffee (bags)	570,045	657,368

* These figures include an estimated 75,000 bags in unlicensed warehouses.

"Artificial Oil of Ants."

Furfural, which is likely eventually to become the cheapest commercially available aldehydic body, was accidentally discovered by Dobereiner just a hundred years ago while preparing formic acid from sulphuric acid, manganese dioxide and sugar. During the reaction Dobereiner discovered that a yellowish oil, which smelt like a mixture of " bitter almonds and oil of cinnamon " separated out. Subsequently, the same " oil " was produced during the preparation of formic acid from the action of sulphuric acid on rye and corn. Larger quantities were later produced from oatmeal and sawdust, the yield being about 12 ozs. from 1 lb. of oatmeal. This reaction gave sufficient of the new product to determine its chemical nature, which was found to be $C_5H_4O_2$. The new product was named " Furfural " from " bran " (furfur) and oil (oleum).

Much of the furfural (an abbreviation of furfuraldehyde) has been prepared from kapok waste, though in America it is made by treating oat husks in large rotary digesters with steam and acid. The substances thus prepared resembles benzaldehyde in some respects and formaldehyde in others. It differs from them both, however, in that it has a very high boiling point and a wide range of solvent power.

The first commercial product of any importance produced from furfural is a moulding resin, which is hard, infusible and insoluble. In addition, a varnish is prepared with oil, which is claimed to be of much lower acidity than the varnishes prepared in the ordinary way. The rubber industry has experimented with this product as a substitute hexamethylenetetramine. The compounds formed by the action of furfural on aromatic amines are nearly all highly coloured and have decided staining and dyeing properties, and several authorities predict that furfural will become important in the dyeing industries. Furfural yields also an anæsthetic on suitable treatment and it has also decided antiseptic and germicidal properties.

It has been established that furfural is an excellent solvent for nitrocellulose and hydrated cellulose acetates; linseed oil is only slightly soluble in furfural, though chinawood oil is miscible in all proportions. Stearic acid is readily soluble in the hot liquid, though only to the extent of one part in 50 when at 25 deg. C. Oleic acid is readily soluble in furfural at 25 deg. C.

While furfural has not as yet been produced on a sufficiently large scale to permit a more profitable investigation of its applications, it is declared that it can be prepared at reasonable cost from any of the pentosan-bearing materials which are now either discarded as waste or sold at very low prices.

Port of Southampton Topics.

Rapid Progress in Dock Extension Scheme.

As a result of the rapid progress being made with the £13,000,000 docks extension scheme of the Southern Railway at Southampton the port's dream of having the finest facilities in the world for the accommodation of the biggest ships is now within measurable distance of being realised. So satisfactorily is everything proceeding that it is anticipated that the first 1,000-ft. of deep water quay will be in readiness to receive liners early in 1931, while it is confidently expected that the first of the three sections in which ths scheme is being undertaken will be completed by the end of 1933. This will furnish Southampton with 3,500-ft. of additional quay, fronted by water at a depth of 45-ft. L.W.O.S.T., and complete in every detail.

The progress made in the building of the new dock wall is one of the most striking features. In February the Mayor of Southampton placed the first block of concrete on one of the big monolith shoes which will ultimately come to rest 80-ft. down in the River Test. Since then 52 monolith shoes have been set along the frontage of the deep water quay wall and the sinking of them has begun in respect of forty. Each of the monoliths, when completed, will weigh 7,000 tons. They are 45-ft. square on plan, and as earth is grabbed from the nine open wells formed by internal partition walls in the monolith shoes, successive courses of pre-cast concrete blocks, each weighing approximately five tons, are built up. As the weight increases and the grabbing continues the cutting edge of the shoe is forced down into the river bed until it finally reaches the required level. Some of the monoliths have already sunk over 70-ft. below the top of the reclamation bank.

By the time that the first 1,000-ft. of the new quay wall is ready early in 1931, the shed, 900-ft. long by 150-ft. wide, which will front the berth, will have been erected, as well as the necessary railway lines, vehicular roads, cranes and other dockside equipment. The remainder of the initial part of this vast scheme will also be well advanced by that time. The entire first section of the scheme will provide three great passenger and cargo sheds, laid out on the most modern lines, and a self-contained dock estate, which will be the " last word " as far as the lay-out for modern transport is concerned.

Equally satisfactory progress is being made with the dredging and reclamation work. The work on the main reclamation bank (150-ft. wide) on the south side of the area has been completed, and the cross bank on the western end has run out to join the main bank. At the point where the cross bank meets the main bank sluice gates are being erected to deal with the surplus water from the reclamation pumping plant. It is expected that the whole of the area to be reclaimed will be totally enclosed by the early part of next year. After that the reclamation dredgers will get busy and the " inland lake " formed by the banks on two sides and the Western Shore on the other will be filled in until nothing but dry land remains. The work at the east end of the new quay wall includes the laying of the foundations for the new pumping station which will deal with the storm water drainage, at present being discharged over the fore-shore.

Approximately 1,000 tons of concrete are being used each week in connection with the scheme. The greater portion of this is brought to Southampton by sea.

North German Lloyd Liners to call at Southampton.

The increasing importance of Southampton as a port is reflected in the announcement that the call of the North German Lloyd liner Berlin at Plymouth at the beginning of October marked the leaving of that port for good. The western port has been used as a place of call for the steamers bound from New York to Bremen, but the Berlin was the last of the fleet to call there. In future Southampton will be the sole British base, both for outward and homeward steamers.

The new list of movements of the North German Lloyd Company vessels indicates a substantial increase in the tonnage that will be handled at Southampton. The most interesting point in the schedule, however, is the fact that it has now been possible to assign a date for the maiden voyage of the Europa, the big twin-sister of the Bremen, which recently gathered to herself the existing speed records of the Atlantic.

The Europa will make her maiden voyage from Southampton on March 20th, 1930. Although no revelation of her speed has yet been made she will, like the Bremen, reach New York on the fifth day out from Southampton. She will arrive back at Southampton on April 3rd.

It is interesting to note that on the day the Europa makes her maiden voyage from Southampton the Bremen will also be at the port, so that the two giant liners will be seen here together.

Good progress is being made with the re-engining of the Columbus (32,000 tons), and she is due to reappear at Southampton on December 15th. Instead of being an eight-day boat as she was before being taken off the service, she will in future do the trip between Southampton and New York in six days. When the Columbus reappears and the Europa is in service the North German Lloyd will have the fastest service across the Atlantic. The Bremen, Europa and Columbus will maintain a weekly service outward and homeward, using Southampton both ways.

Increase in Southampton-Java Trade.

The first of the two motor vessels of the Nederland Royal Mail Line which are under construction for the Southampton-Java service, the John Van Oldenbarnevelt, will make her first appearance at Southampton on May 8th next. The sister ship will make her appearance a few months afterwards. The increased trade between Southampton and Java is indicated by the Nederland Line's developments, and also by the developments which the Rotterdam Lloyd Line are making for their service. The first of the two motor liners which are being built for this service is expected to make her maiden voyage next year.

Big Increase in Passenger Traffic at Southampton.

The feature of the Southampton Dock returns for September, which are just published, is the big increase in the number of passengers compared with the number for the corresponding month of last year. The increase was 7,000, the inward figure climbing from 33,859 in September, 1928, to 39,352, and the outward aggregate going from 37,025 to 38,280. Such a big increase indicates that Southampton is maintaining her proud position in relation to passenger traffic.

The amount of traffic handled showed a slight drop in the outward tonnage. More vessels used the port than in the corresponding month of last year, there being 382 inward (compared with 378) and 373 outward (as compared with 369). The gross tonnage inward increased from 1,662,840 tons to 1,741,505, while outward the figure decreased from 1,813,339 tons to 1,735,016 tons. The net tonnage totals showed a similar tendency, for while the inward aggregate was 55,684 tons in excess of that of September, 1928, the outward total was 22,982 less. The figures were:—inward, 924,446 tons as compared with 868,782; outward, 921,665 as against 944,647.

The inward and outward cargo figures showed small decreases compared with last year's totals.

Captain J. B. Whitton retires.

The retirement of Captain John Barry Whitton, the Marine Superintendent of the Union-Castle Line at Southampton, has removed from Dockland a very popular personality. Captain Whitton has a career of practically fifty years unbroken service with the sea and ships, and for 37 years he has been with the old Castle Line and the present Union-Castle Line. A native of Dundee, Capt. Whitton began his seafaring career in 1880 with Messrs. Barnes, Guthrie and Co., of Cardiff. Later he served with Mesrs. James Beazley, of Liverpool, and the Bay Line, of Glasgow. All these firms owned large fleets of sailing vessels, and it was during Capt. Whitton's eleven years in sail that he worked up from apprentice to chief mate. Upon deciding at the conclusion of his service with the Bay Line that he would transfer to steam he sat for his extra master's certificate, and passed it.

Captain Whitton's first appointment with the old Castle Line was as fourth officer on the Garth Castle, and he rose to the position of chief officer by 1901. In 1910 he was raised to a command, and from then until the conclusion of his sea-going career he skippered many of the Company's vessels. During the war Capt. Whitton was in charge of the Goorkha, which was used as an ambulance transport, and he was on board that vessel when she was mined in the Mediterranean. Afterwards Capt. Whitton passed to the Garth Castle, which was the principal naval hospital ship employed in connection with the North Russian campaign.

Schneider Trophy Pilots' Appreciation.

On behalf of the Schneider Trophy pilots and the whole of the British High Speed Flight, Squadron-Leader A. H. Orlebar, the captain, has written to the Southampton Master Mariners' Club thanking the members for their congratulations on the British victory, and expressing gratitude for the kindness and consideration shown to the airmen at all times by shipping in Southampton Water. " We fully realise the inconvenience we may have caused," adds Squadron-Leader Orlebar, " and therefore can appreciate the consideration which has been shown to us, and which has so materially assisted us in achieving success."

Port of London Authority.

Twentieth Annual Report for the Year ended 31st March, 1929.

Trade of the Port for the Year.

Shipping Arriving and Departing.

The total net register tonnage of vessels that arrived and departed with cargoes and in ballast from and to foreign countries and British Possessions and coastwise during the years ended December 31st, 1913-1928, was as follows:—

	Tons.		Tons.
1913	40,080,282	1921	34,089,783
1914	37,154,133	1922	39,293,139
1915	30,890,531	1923	41,215,062
1916	24,976,437	1924	45,392,649
1917	18,053,002	1925	47,064,975
1918	14,564,008	1926	49,278,173
1919	26,335,191	1927	52,576,755
1920	32,758,604	1928	55,423,681

The totals for the years 1914 to 1918 do not include the tonnage of many of the vessels engaged on Government service in connection with the war.

Shipping paying River Tonnage Dues.

The net register tonnage and deck cargo tonnage of shipping which was liable to and paid river tonnage dues inwards or outwards during the twelve months ended March 31st, 1929 and 1928, respectively, was as follows:—

	1929	1928	Percentage Increase
Foreign—			
Inwards	20,285,473	19,845,864	2.2
Outwards	10,994,363	10,792,100	1.9
	31,279,836	30,637,964	2.1
Coastwise—			
Inwards	7,040,806	6,624,929	6.3
Outwards	2,490,396	2,370,384	5.1
	9,531,202	8,995,313	6.0

Totals—1929, 40,811,038; 1928, 39,633,277; percentage increase 3.0

There was thus an advance of 1,177,761 tons, composed of 641,872 tons in the foreign and 535,889 tons in the coastwise trade.

Shipping using the Wet Docks.

Of the total net register tonnage and deck cargo tonnage of shipping shown above that paid river tonnage dues, 61.6 per cent. used the wet docks of the Authority, compared with 61.9 per cent. during the twelve months preceding, as follows:—

	1929	1928	Percentage Increase
Foreign—			
Inwards	14,684,279	14,438,384	1.7
Outwards	8,363,786	8,134,063	2.8
	23,048,065	22,572,447	2.1
Coastwise—			
Inwards	1,246,566	1,178,880	5.7
Outwards	831,420	785,404	5.9
	2,077,986	1,964,284	5.8

Totals—1929, 25,126,051; 1928, 24,536,731; percentage increase 2.4

Shipping using the Dry Docks.

The shipping entering the dry docks of the Authority during the twelve months was 115,607 tons more than that of the previous year, viz.:—

1929—2,913,047 tons gross. 1928—2,797,440 tons gross.

Imports and Exports.

The values of the total imports and exports (excluding coastwise goods) of the United Kingdom and six principal ports for the year ended December 31st, 1928, were as follows:—

	1928 £	1927 £	Percentage Increase or Decrease on 1927
United Kingdom	2,039,460,746	2,050,375,252	— 0.5
London (including Queenborough)	692,730,143	706,264,020	— 1.9
Liverpool	485,386,073	481,229,460	+ 0.9
Hull	108,349,364	108,483,328	— 0.1
Manchester (including Runcorn)	98,464,721	94,438,743	+ 4.3
Southampton	94,885,022	90,253,200	+ 5.1
Glasgow	88,181,943	77,363,089	+14.0

During the twelve months ended March 31st, 1929, the Authority landed or received 2,079,516 tons of import goods for warehousing or for immediate delivery, a decrease of 258,595 tons, or 11.1 per cent., on the tonnage dealt with during the previous twelve months.

The stocks of goods at the end of March, 1929, in the warehouses directly controlled by the Authority amounted to 585,637 tons, as compared with 617,557 tons at the corresponding date in 1928, a decrease of 31,920 tons.

The export traffic handled on the dock quays during the twelve months amounted to 715,687 tons, being an increase of 15,675 tons on the previous year's figure of 700,012 tons.

Finance.

During the year the Authority has had under consideration the amendment of the form of its statutory annual accounts, and proposals were submitted to the Ministry of Transport, whose approval is contained in Regulations dated March 28th, 1929. The present accounts have been prepared in accordance therewith.

Borrowing Powers Authorised and Exercised.

The balance of borrowing powers unexercised at March 31st, 1929, amounted to £5,392,042 as follows:—

	£	£
Total amount authorised		43,000,000
Borrowed—		
(a) Port Stock issued and outstanding	34,142,698	
(b) Port Stock purchased and extinguished	447,761	
(c) Port Stock redeemed	17,499	
(d) Withdrawn from Stock (Redemption) Funds	2,000,000	
(e) Port of London Bills issued and outstanding	1,000,000	
		37,607,958
Balance of borrowing powers unexercised		£5,392,042

Port of London Bills.

Bills to the amount of £1,000,000 were issued on October 25th, 1928, and will mature on April 25th, 1929.

Temporary Loans.

Temporary loans were obtained during the year, and an amount of £566,000 was outstanding at March 31st, 1929.

Capital Expenditure.

The capital expenditure for the year ended March 31st, 1929, amounted to £1,731,899.

Utilisation of Redemption Funds in Exercise of Borrowing Powers for £1,000,000.

By reason of the appropriation of additional capital receipts to the Stock (Redemption) Funds, the Authority has been enabled to use a further sum of £1,000,000 for capital purposes as an application of its borrowing powers, and a surplus of investments to the value of £294,705 held on account of Stock (Redemption) Funds has been transferred to investments in respect of Insurance Fund.

Stock (Redemption) Funds and Capital Redemption Account.

During the year further Stock (Redemption) Funds have been filled up, resulting in a reduction in the annual Stock (Redemption) Fund contributions. The amount standing to the credit of the funds at March 31st, 1929, was £832,633. The investments held on account of these funds stand in the books at a value of £722,759 leaving a balance of £109,874 uninvested.

Supplementary to the statutory requirements in regard to Port Stock, provisional Sinking Funds are in operation for the redemption of certain expenditure in respect of which borrowing powers have not yet been exercised.

The Authority, after reviewing the heavy demolitions arising out of the new works at India, Millwall, and Tilbury Docks, has decided to make special provision for writing off the lost capital by contributing to the Provisional Redemption Fund a sum of £350,000, thereby reducing the future annual charge against Revenue Account in respect of these demolitions.

The balance of the Provisional Sinking Funds amounted at March 31st, 1929, to £502,056.

The Capital Redemption Account now stands at £1,946,899, representing an increase of £656,330 during the year.

Working Results.

The following is a summary of the year's working:—

	£	£
Total Revenue		5,845,938
Total Expenditure		4,551,915
Balance of Revenue		1,294,023
Less—		
Interest on Port Stock and Temporary Loans, Sinking Fund Charges, etc., less Interest, etc., receivable	1,138,838	
Provisional Redemption Fund as above	350,000	
		1,488,838
Deficit		194,815
Balance brought forward from 31st March, 1928		591,399
Balance carried forward		£396,584

Port of London Authority—continued.

General Fund for the Maintenance and Renewal of Premises and Plant, and for Dredging.

The balance standing to the credit of this fund is £614,380, being a reduction of £373,473, which latter amount represents the expenditure during the year.

General Reserve Fund.

The amount of the Reserve Fund remains at £1,000,000, this being the statutory maximum prescribed by Section 107 (1) of the Port of London (Consolidation) Act, 1920, and is fully invested in trustee securities which stand in the books at less than mean market prices at March 31st, 1929. The fund reached the maximum during the year ended March, 31st, 1922, and since that date the interest on the investments has been credited to Net Revenue Account.

Insurance Fund.

This fund, which stood at £600,000 at March 31st, 1928, has been utilised since that date to bear all the Authority's insurance. The amount standing to the credit of the fund at March 31st, 1929, was as follows:—

	£
Amount at 31st March, 1928	600,000
Added since—Income accumulated from Investments	22,651
	622,651
Less—Losses, Reinsurances, etc., during the year	20,477
Amount at 31st March, 1929	£602,174

The investments held on account of the Insurance Fund stand in the books at a value of £600,000.

Auditor.

The Ministry of Transport re-appointed Sir William Plender, Bart., G.B.E., of the firm of Deloitte, Plender, Griffiths & Co., to be auditor of the accounts of the Authority for the year ended March 31st, 1929, in accordance with the provisions of Section 109 of the Port of London (Consolidation) Act, 1920.

Works and Improvements.

India and Millwall Docks.

Stage 1.—(a) A communication passage, 80-ft. wide, between the South West India Dock and Millwall Dock. (b) A cutting, 350-ft. wide, through the quay between South West India Dock and the West India Export Dock. (c) A communication passage, 80-ft. wide, with a bellmouth at the north end between the West India Export and Import Docks. (d) Remodelling of railway lines. The above works have been completed and brought into use.

Stage 2.—(a) New entrance lock, 590-ft. long, 80-ft. wide, 35-ft. deep below T.H.W., approximately on the site of the existing South West India Dock entrance. (b) Filling in of the passage between the Blackwall Basin and the Export Dock and removal of the knuckles between the South Dock and the basin. Good progress has been made with this section of the improvements, the lock walls having been built and the three pairs of lock gates erected.

Stage 3.—Diversion of the goods railways between the Exchange Sidings and the Millwall Dock to the west side of the West India Dock to avoid crossing the new entrance lock. This work has been substantially completed.

A contract has been placed for a new shed and quay equipment at the South West India Dock, estimated to cost £270,000, and work has been commenced.

East India Dock.

No. 1 Berth, East India Dock, has been equipped at an estimated cost of £20,000, with elevators and conveying plant, etc., for dealing with banana traffic from Jamaica.

Surrey Commercial Docks.

The construction of three sheds at Surrey Commercial Docks to provide additional under-cover storage for soft wood has been completed.

In order to accommodate still more traffic in soft wood, the Authority has undertaken a scheme of development at the Lavender and Acorn Ponds. The scheme includes the deepening of the ponds to 19-ft. at T.H.W.; the construction of a new quay on the eastern side with three sheds (one to be fitted experimentally with mechanical appliances) capable of storing 12,200 standards under cover and 4,000 standards in the open; and the widening of the passage from Stave Dock as well as the provision of impounding plant for the whole of the system, at an estimated cost of £248,000. Contracts have been placed for the greater part of the work, and considerable progress has been made.

Royal Victoria Dock.

The Authority decided to carry out extensive repairs to the western entrance to Victoria Dock in order to enable that entrance to be reopened for barge traffic. Work at the outer lock gates is well advanced.

Tilbury Docks.

New entrance lock, 1,000-ft. long, 110-ft. wide, and 45½-ft. below T.H.W., situated 1,200-ft. above Tilburyness; new dry dock at the eastern end of the Tilbury Main Dock, 750-ft. long, 110-ft. wide, 37½-ft. below T.H.W. on sill and blocks.

The lock walls have been built, the lock gates erected, and water has been admitted to the lock and dock extension. Dredging to the required depth is proceeding.

The dry dock has been constructed, the dam across the entrance removed, and the caisson placed in position. The equipment of the dry dock is in hand.

The new Western Approach Road to the south quay of the docks was opened to traffic during the year.

The floating portion of the passenger landing stage, 1,140-ft. long, with baggage hall, etc., has been placed in position for nearly its full length and the eastern end brought into use for the Tilbury-Gravesend ferry service. The five bridges connecting the stage with the shore have been erected. The substructure for the baggage hall has been completed, and work on the superstructure is proceeding.

The remodelling of Tilbury Station by the London Midland and Scottish Railway Company is in hand.

Dredging.

During the year dredging has been carried out for the maintenance and improvement of the channels of the river and 1,940,030 cubic yards of material have been removed.

The quantity of mud removed from the docks during the year was 1,063,107 cubic yards.

The Authority adopted a re-alignment of the channel in Erith Reach to conform to the natural formation of the river bed in that locality.

The dredging of the Surrey Canal throughout its length is progressing.

General.

Substantial progress has been made with the programme for bringing the undertaking and its equipment into an adequate state of repair and up-to-date condition. Further authorisations in pursuance of this policy have been made for the ensuing year.

Tower Pier.

The new floating pier off the Tower of London has been completed and brought into use.

General.

Rates of Pay, etc.

The rates of pay and conditions of service of the permanent staff have been reviewed by the Authority during the year, and the new scales which provided for the consolidation of all war bonus came into operation on October 1st, 1928.

"Safety First" Organisation.

The "Safety First" Committees have continued to function satisfactorily.

Wreck Service.

Forty-three vessels were removed from the river by the wreck-raising plant during the year, viz.:—Three steamers measuring 5,497 tons, 38 sailing vessels and barges measuring 2,315 tons, and two small motor craft. In addition, one dumb hopper measuring 202 tons and nine sailing vessels and barges measuring 434 tons were raised in the docks.

Dock By-laws.

A revised code of Dock By-laws was brought into operation in October, 1928.

Commercial Visit to Australia, New Zealand and Canada.

The Authority deputed the Principal Assistant to the General Manager, with an assistant from the Commercial Department, to visit Australia, New Zealand, and Canada in order to make better known the facilities in the Port of London.

Additions to Floating Plant.

The Authority placed in commission a new survey and inspection steamer—the "St. Katharine"—and ordered the construction of a floating grain elevator.

Port of London Authority—continued.

Petroleum By-laws Inquiry.

The Minister of Transport intimated his decision in July on the main issues raised by the proposed revised code of Petroleum By-laws as follows:—

1. That an alteration in the existing limit of navigation for petroleum tank ships is undesirable.
2. That ships carrying not more than 1,000 tons of petroleum spirit or petroleum spirit and other petroleum in barrels or drums should be allowed to navigate the River Thames to and from Bow Creek.
3. That ships carrying not more than 2,000 gallons of petroleum spirit or petroleum spirit and other petroleum in barrels or drums should be allowed to navigate throughout the port of London.

The draft by-laws have been revised consequent upon the Minister's decision.

Parliamentary—Port of London Act, 1928.

The Bill promoted by the Authority to increase its borrowing powers and also to amalgamate the funds of the London and India Docks Pension Scheme and of the Port of London Authority Pension Scheme passed both Houses of Parliament unopposed and, with minor amendments made during progress, received Royal Assent on July 2nd, 1928.

Royal Victoria and other Docks Approaches (Improvement) Bill.

This Bill was promoted jointly by the London County Council and the West Ham Corporation to enable the Council and the Corporation, in collaboration with the Minister of Transport, to carry into effect the Victoria Dock Road improvement scheme.

The general lay-out of the scheme, as set out in the deposited plans, did not provide for direct access for traffic to and from the King George V. Dock and the south side of the Royal Albert Dock, but as the result of conferences held at the Ministry of Transport it was agreed that a connecting spur road was desirable to enable traffic to and from the docks at this point to avoid Connaught Road, with its series of level crossings, and to proceed direct to Barking and Central London by means of the new roads. Agreement was reached on the basis that the promoters and the Authority each bear one-half of the agreed estimated cost of the suggested roadway so far as it is outside the dock boundary and one-half of the actual cost of acquisition of the necessary property.

Effect is given in the Bill to the arrangement under which the Authority is to give to the Minister certain areas of land north of the Royal Albert Dock for the purpose of a housing scheme for persons whose dwellings will be demolished by the new road works.

Pollution of Rivers.

The Advisory Committee appointed by the Ministry of Health and the Ministry of Agriculture and Fisheries to consider and report on the question of pollution of rivers met in June, when the Chairman of the River Committee gave evidence on behalf of the Authority and represented that as regards the River Thames it was undesirable to set up a new body for dealing with this problem, but that the Authority would welcome the formation of a joint committee on which members of the Port Authority, the Thames Conservancy, and the Port Sanitary Authority would sit to consider all matters of general policy relating to pollution.

The Advisory Committee issued their first report on July 1st, which includes the following, viz.:—

"The Rivers Thames and Lea are under the control of Conservancy Boards set up by special legislation. We do not suggest that these Boards should be interfered with, or that Rivers Boards should be set up for these two rivers."

Quinquennial Dock Assessment.

Arising out of the successful appeal by the Authority against the assessment of the East and West India and Millwall Docks in the Metropolitan Borough of Popular, under which a sum of £124,797 was refunded to the Authority by order of the London Quarter Sessions, certain of the ratepayers took proceedings in the High Court to obtain a rule to quash the order on the ground that it was *ultra vires* and void because the time laid down by the Valuation (Metropolis) Act, 1869, within which it should have been made had expired. The application was dismissed and the order of the Court of Quarter Sessions in favour of the Authority was upheld.

Chairman and Vice-chairman.

The Authority re-appointed Lord Ritchie of Dundee to be its Chairman and Mr. C. F. Leach to be its Vice-Chairman for a period of three years from April 1st, 1928.

Leipzig and the Mittelland Canal.

The inspection by the members of the Budget and the Transport Committees of the Reichstag of the country through which it is proposed to cut the Mittelland Canal terminated on the 11th October, 1929. Members of the Committee came from Halle and met at Leipzig. On their way from Halle the route of the Elster-Saale Canal was examined and also the industrial areas in the Western part of Leipzig, where it is proposed to construct the harbour.

The guests on arrival in the town were received at the Town Hall, representatives of the Town Authorities, the Chamber of Commerce, Industry, Press, and the Association of Elster-Saale Canal being present.

At the commencement of the proceedings a speech was made by the Saxon Chancellor of the Exchequer, Weber, who pointed out especially that Leipzig and its extensive outlying districts need a direct waterway to the sea-coast. In accordance with the State Agreement of 1926 the Free State had every right to demand the commencement of the construction as early as possible. In this connection he referred to the great sacrifice which the State of Saxony and the town of Leipzig had made to the Reich in connection with the promises contained in this Agreement.

Mayor Hofmann, speaking for the town of Leipzig, said that the economic position of the Leipzig area warranted a junction with the Mittelland Canal.

Dr. Uhlig, of the Chamber of Commerce, then emphasized the importance of the Elster-Saale Canal in connection with the "Sudflugel." After giving a short resume of the history of the Leipzig Canal, Dr. Uhlig sketched the economic importance of Leipzig and its outlying districts. The vital point of Dr. Uhlig's speech consisted in replying to the following questions:—What amount of goods traffic may reasonably be expected on the Elster-Saale Canal and what economies in the cost of freight will be effected by using the Canal?

According to the result of the economic examination, which was made by the officials of the Canal Board in Leipzig, based on the figures for 1912, it was assumed that goods would be carried to the value of 1,600,000 tons. Of this quantity 50 per cent. would fall to Leipzig itself and 50 per cent. to the outlying districts of the Canal (West Saxony and East Thuringia). But at the present day these figures must be looked upon as too low. As a matter of fact, in the case of the railway the amount of goods traffic transported between the years 1913 and 1927 showed an increase of only 5 per cent., but it was impossible to base a calculation on these figures as far as the "Sudflugel" and the Elster-Saale Canal were concerned.

As the amount of traffic on the water-ways in Germany during the same period showed an increase of 15 per cent., it could naturally be supposed that the increase of traffic on the Elster-Saale Canal was also 15 per cent., and the conclusion could therefore be drawn that for 1927 traffic amounted to at least 1.8 million tons. If, however, the increase in goods traffic of the Central German railway traffic were taken into consideration these figures appeared far too low, as during the period from 1912 to 1927 there was an increase in goods traffic of 31 per cent.

The development of traffic in Central Germany had consequently increased to a greater extent than that in Rhenish-Westphalia which could show an increase of only 9.7 per cent. Taking all these figures into consideration, a saving in the cost of freight to the extent of 18 million Reichsmarks per year could be reckoned with. But that was already half of the total building cost of 36 million Reichsmarks for the Elster-Saale Canal.

Towards the close of the proceedings Dr. Gutbrod, of the Reich Ministry of Transport stated that the present financial position of the Reich was likely to hamper the immediate construction of the Canal.

The Port of Bristol Authority.

Annual Report for the Year ended 31st March, 1929.

During the financial year 1928-9 the depression in trade throughout the country continued, and in the circumstances it is satisfactory to report that notwithstanding the difficult conditions which have prevailed the port generally maintained its relative position in the import and export trades.

Capital Expenditure.

The final stages in the equipment of the extension of the Royal Edward Dock, opened by H.R.H. the Prince of Wales on the 23rd May, 1928, were proceeded with during the year, and the work at 31st March, 1929, was almost completed. Granary No. 4 had been brought into use.

The total capital expenditure of the undertaking at the 31st March amounted to £8,584,062. Of this sum £146,032 was expended during the past year, the details of which are as follows:—

	£
Royal Edward and Avonmouth Docks—	
Eastern Arm Extension	114,410
Granary No. 4	26,122
Sundry Works	4,789
City Docks—	
Sundry Works	711
	£146,032

The progress of the works in connection with the extension of the Royal Edward Dock may be summarized as follows from the reports of the Docks Engineer:—

The whole of the work in connection with the Granary No. 4 and the reinforced concrete wharves and transit sheds at the Eastern Arm Extension was completed during the financial year.

Contracts have also been completed in respect of ten 2-ton electric movable roof cranes for sheds " U " and " V," thirty portable automatic weighers for the Transit and Silo Granaries, and sixteen 2-ton electric capstans. Good progress was made with the installation of grain-handling machinery, including the pneumatic quay elevators, and the work was practically completed at the end of the year.

It is of interest to note that the total expenditure on works, including the extension of the Royal Edward Dock, approved as schemes partly for the relief of unemployment from 1920 to 31st March, 1929, was £1,148,099.

In the case of certain works the sum of £66,966 has been recovered by way of grants, and in the case of other works the Unemployment Grants Committee is contributing one-half the interest on capital expenditure for a period of years.

Revenue.

The balance to net revenue last year amounted to £266,840, which is the largest sum so far recorded. This result has been obtained largely by economies in working expenses. The net revenue was 33.4 per cent. of the gross revenue, and this is an improvement upon previous years. The principal sources of revenue were on the whole satisfactorily maintained. In the Traffic Department receipts were lower on account of the smaller quantity of grain and other traffic handled by the Authority during the year. The warehouse receipts attained an average level.

Trade of the Port.

The tonnage of vessels resorting to the port has been steadily maintained throughout the year. The total net register tonnage of vessels from foreign ports was 2,144,522, compared with 2,119,592 in 1928, and is only slightly below the figures for 1925, which was a record year for the port. The returns for the year reflect the continued prevalence of the practice in many trades of loading vessels with cargo for two or more home ports. The quantity of cargo discharged in relation to the register tonnage was 97.4 per cent., compared with 101.1 per cent. in 1928.

The tonnage of vessels arriving coastwise was 1,116,616, a decrease of 39,862 tons compared with 1928. There was a decline in the coal and iron traffic from South Wales. There was also a reduction in the number of vessels entering coastwise to load cargo for foreign ports. The regular coastal services for general cargo, both inward and outward, have been well maintained.

The proportion of net register tonnage foreign and coastwise entering each of the docks in the last three years compares as follows:—

Year.	City Docks. Per cent.	Avonmouth. Per cent.	Portishead. Per cent.
1927 ...	25.9	69.8	4.3
1928 ...	28.2	67.8	4.0
1929 ...	26.9	69.4	3.7

The weight of imports was barely equal to that of the preceding year, grain, sugar and timber being the principal items which show a falling off. In the case of grain and timber, the quantities imported into the United Kingdom show a decline, but Bristol has maintained its relative proportion.

Much time has been given by the officers in connection with negotiations for an increase in both the imports and the exports. The increases in some of the branches of the trade of the port reflect these endeavours.

Sites for Works on the Dock Estate.

Special steps have been taken to bring to the notice of manufacturers the sites for works available on the land immediately surrounding the dock, and also on the Chittening Estate, and the commercial advantages of establishing works in close proximity to the Avonmouth Docks. Enquiries have been received from various manufacturers, and there are grounds for hoping that the Chittening Estate will in the near future be developed on the lines anticipated when it was purchased.

The attention of firms in the flour and grist milling trades has also been called to the land available at the Avonmouth Docks suitable for the erection of mills. In view of the tendency of the milling industry to concentrate at the ports, it is hoped that the advantages offered at the Avonmouth Docks will be recognised by the millers and others trading in this part of the country.

During the year the following firms have taken land and premises on the Dock Estate:—

British Petroleum Co.—Land at Royal Edward Dock, Avonmouth, for extension of oil installation.

Russian Oil Products Co.—Land at Royal Edward Dock, Avonmouth, for extension of oil installation.

John Robinson and Co.—Warehouse, Avonmouth Dock.

John Robinson and Co.—Buildings, Avonmouth Dock.

Bristol Steam Navigation Co.—Transit Shed, City Docks.

Trade with South America.

During the summer of 1928 the chairman, accompanied by Mr. Ross-Johnson, visited the Argentine Republic and Brazil in the interest of the port. Following this visit a special committee of representative traders has been formed in Bristol with the object of taking steps to extend and develop trade between South America and Bristol. As an outcome, two prominent merchants, on behalf of the Bristol importers, have arranged to visit the Argentine Republic this summer to meet exporters and to examine the trade possibilities on the spot.

British Industries Fair.

The Port Authority again had a stand at the British Industries Fair held in Birmingham in February last. The opportunity was taken during the Fair to arrange a meeting between members of the Authority and a number of the leading importers and exporters in the Midlands.

Grain Charter Parties—Bristol Channel Discharge Clause.

Negotiations have been proceeding satisfactorily for some time past between the Chamber of Shipping, the Bristol Corn Trade Association and the Port Authority for a revision of the existing Discharge Clause in Grain Charter Parties. It is satisfactory to report that good progress towards a settlement has been made, and it is hoped that the new terms will shortly be finally agreed upon by the interested parties.

Transport Matters.

Having regard to the many changes and developments which are taking place in regard to inland transport services and charges, several of the local Trade Associations have appointed special Transport Committees to examine the position and take such steps as may be found necessary to safeguard the trade of Bristol. The Port Authority is represented on these Committees, which, it is thought, will be of considerable assistance. Negotiations have been entered into with the Railway Companies on various questions affecting the distributive trade of the port, and some progress has been made in these matters.

The Port Authority found it necessary to appear before the Railway Rates Tribunal on several occasions when matters affecting the trade of the port were before the Tribunal.

Maintenance of Works.

The Engineer reports that the whole of the Authority's buildings, permanent way, locomotives, wagons, cranes, machinery, gear, floating, shore and other plant has been maintained in good working condition and repair. The dredging operations have resulted in a total quantity of 2,434,910 tons of mud deposit being dredged.

Visits to the Docks.

Among the visitors to the docks during the year may be recorded the Hon. James J. Davis, Secretary for Labour, U.S.A. Government; Judge R. W. Donges, U.S.A.; Mr. Edward P. Cotter, Head of Foreign Ports Survey, Washington; Professor A. Bushell Hart, Harvard University; Mr. Albert H. Ladner, Commissioner of the Port of Philadelphia; Major Le Roy Hodges, General Manager, Virginia State Chamber of Commerce; Mr. Chester H. Payne, Director of Canadian Trade Commissioner Service; a party of overseas farmers from Australia, New Zealand and South Africa, under the auspices of the British National Union; members of the Ports and Harbours Tribunal, Irish Free State; the Fruit Importers' and Fruit Traders' Association of the United Kingdom and various other Trade Associations.

The First Mine Sweeping Flotilla of the Royal Navy paid a visit to the City Docks from the 10th to 14th May, 1928.

Staff.

During the past year Mr. D. Ross-Johnson retired from the position of general manager after seventeen years' service with the committee. The committee passed a resolution recording their high appreciation of the services which Mr. D. Ross-Johnson had rendered.

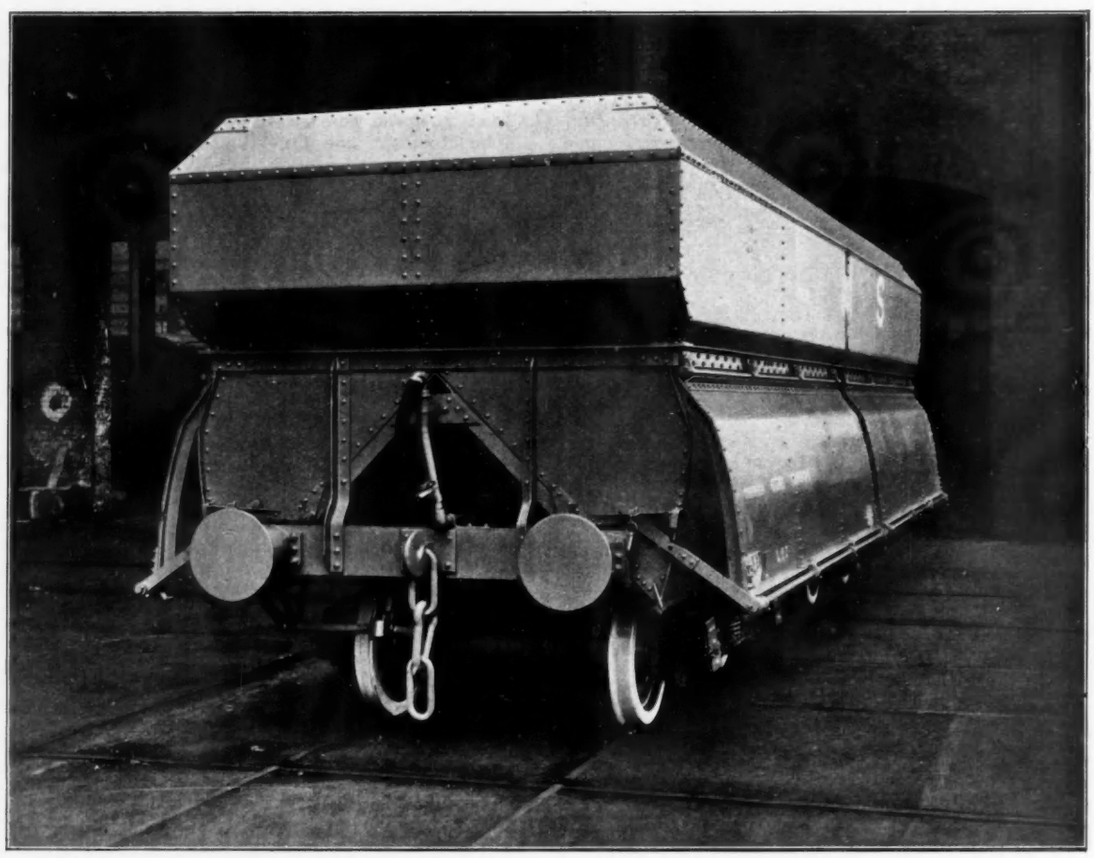
The retirements during the year under the Corporation Superannuation Scheme also include the following:—

Mr. G. A. Collins, Traffic Manager, Avonmouth Docks.
Mr. H. Barrington, Grain Superintendent, Avonmouth.
Mr. C. Fenton, Chief Maintenance Superintendent.
Mr. W. H. B. Reed, Conservancy Inspector.

40-ton Coal Wagons for the L.M.S.

The L.M.S. have placed an order with the Birmingham Railway Carriage and Wagon Co., Ltd., for thirty 40-ton bogie hopper wagons, the leading dimensions of which are as follows:

	Ft.	In.
Length over headstocks	32	0
Length over body	33	6
Width over body	8	11
Total height from rail	10	9
Centres of bogies	18	0
Bogie wheel base	6	0
Diameter of wheels on tread	2	8½



40-ton Coal Wagon for L.M. & S. Railway.

The wagons are so constructed as to obtain the maximum capacity within the loading gauge, and are fitted with two discharging doors on each side. The hopper bottom plates are stiffened by diagonal members of angle section and are constructed integral with the underframe, the result being a strong compound central girder of triangular shape, capable of withstanding all the stresses due to loads and severe conditions. The body is divided into two sections by a central diaphragm plate 3/16-in. thick. Each door is carried on a continuous hinge bar and is fastened by a locking bar having four clip levers attached, at the bottom. The locking bar is securely held in position by two levers fitted at each end of the door. The door is released by knocking up the horizontal lever at the end of the wagon. This releases the lever attached to the locking bar and allows the door to open to the maximum position when the locking bar lever re-engages with the other lever automatically and holds the door open.

To close the door again after discharging the load, all that is necessary is to disengage the two levers previously mentioned when the door will fall and close and lock automatically. A French pin is then inserted through the vertical lever as an additional security against exceptionally sever buffing shocks, causing the levers to disengage.

The plates and rolled sections used in the construction of the wagons are of rust-resisting steel. The wagon is fitted with automatic vacuum braking and a hand brake of the Dean and Churchward type. The buffers are of the self-contained type and the drawgear is non-continuous, rubber springs being fitted immediately behind the headstocks. The bogies are of the diamond frame type, fitted with helical bolster springs and with brake rigging arranged to actuate blocks on the inside of all wheels. The wheels are constructed with centres of the rolled steel disc type. The tare weight of the wagon is under 19 tons.

Ceylon and Indian Notes.

Madras Port.

A pleasing feature of the Administration Report of the Madras Port Trust for 1928-29 is an increase in revenue receipts. The increase during the first four months of the year was abnormal when compared with the corresponding period of the previous year. The increase in the subsequent months was not so marked.

The total value of trade of the port as furnished by the Collector of Customs amounted to Rs.5,202.07 lakhs, representing 48.64 per cent. of the aggregate trade of the Presidency, as against 46.18 per cent. in the previous year. Imports accounted for Rs.4,279.86 lakhs and exports Rs.922.21 lakhs. These figures are exclusive of Government transactions. The actual revenue receipts, including the contribution of Rs.60,000 made by the Madras Port Fund, amounted to Rs.4,955,974, the largest on record and an increase of 10 per cent. over 1927-28, the previous best year. The increase in revenue is due to the increase in the tonnage of both imports and exports landed at and shipped from this port. In gross expenditure, inclusive of Rs.1,800,000 contributed to three reserve funds, amounted to Rs.6,477,293 as compared with Rs.4,969,147 in 1927-28. Excluding from gross expenditure the interest on loans which in the year under review amounted to Rs.827,949, contribution to capital (Rs.868,833), repayment of debt (Rs.329,113), sinking fund (Rs.78,453) and amounts set aside for reserve funds (Rs.1,800,000) and omitting from the receipts Rs.60,000 contributed by the Madras Port Fund, actual working expenses came to 52.55 per cent. of the income against 53.7 per cent. in the previous year.

Though the number of vessels that entered the harbour decreased from 936 in 1927-28 to 896 in 1928-29, the total net registered tonnage increased from 3,013,109 to 3,075,028, the largest in the history of the port. The vessel of the greatest tonnage which entered the port was the s.s. " City of Paris," of Glasgow, with 10,902 tons gross and 6,855 tons net register, and the vessel with the deepest draught was the s.s. "Badarpur," drawing 29-ft. Passengers to the number of 95,952 arrived at and 77,487 left the port, making a total of 173,439 against 232,356 during last year and 225,391 in 1926-27. The total tonnage of imports and exports dealt with during the year under review amounted to 1,595,891, a record figure and an increase of 10.49 per cent. over the previous year.

The Galle Wharves.

Recently the two cargo landing jetties of the Galle Port were converted from wooden structures over concrete piers to wharves of permanent duration built entirely of metal and concrete material. These jetties have two cargo cranes each and other necessary appliances and are found to be functioning well generally. The bollards for tying up cargo lighters were found to be out of place, and the fault was rectified recently. The jetties are now electrically lit. After the completion of the two landing jetties, the Ceylon Government Factory Department, who had the work in hand—first under the direct supervision of Mr. D. D. Chanmugam and later of Mr. V. Muthamani —turned their attention to the Passenger Jetty and this is also now quite complete. Like the landing jetties, the last named wharf is entirely of metal and concrete. The factory hands have dismantled their several appliances, including an oil-engine driven metal crusher, and will be away from Galle soon.

Something in the neighbourhood of Rs.65,000 had been included in the Colony's last budget—about half of that for a steam launch for the use of the Master Attendant's Department, and the other half for a survey of the harbour. Survey operations were carried out during the calm weather conditions of the first half of this year. It was originally stated that the steam launch would be in Galle in October. It was also reported that a " slip " was to be erected for the steam launch to run into the boat anchorage from the leeside of Swartz Bastion. It was also in the scheme of things to throw out a jetty near the same spot for the exclusive use of the Master Attendant's Department. This will be where the mooring gear and tackle will be stored in future, which presently lie at the end of the Passenger Jetty. The water supply for the shipping will run out from piping laid along the Pasenger Jetty. A water tank was built last year behind the warehouses. It does not serve any purpose at present, but would probably be brought into use after the duplication of the town's water main.

Decline in Trade of Chittagong Port.

Although better in comparison with that of the year 1926-27, the results of the first year's (1928-29) working of the Port of Chittagong as a major port has not quite fulfilled expectations.

The total value of the trade of the port, according to Customs returns, fell from Rs.1832.4 lakhs in the year 1927-28, which was a record year, to Rs.1519.3 lakhs in the year under review, and the ordinary income declined from Rs. 955.546 to Rs.830,931, the decline being attributable to a fall in the foreign as well as in the coasting trade. The total Port Fund income for the year amounted to Rs.984,258, including transfer of Rs.133,219 from the Miscellaneous Reserve Funds, against Rs.975,754 of the preceding year. The ordinary expenditure of the year amounted to Rs.367,980, against Rs.453,064 of the previous year, excluding the amounts of contribution to the capital account.

As compared with the previous year, the year 1928-29 closed with a heavy decline in the total value of the trade of the Port of Chittagong (excluding the subordinate ports), which fell from Rs.183,318,598 in the year 1927-28 to Rs.151,988,562 in the year under report, showing a decrease of Rs.31,330,036, or 17.09 per cent.; but in comparison with the year 1926-27 the total value of trade of the year under review showed an increase of Rs.10,156,599, or 7.16 per cent.

Total Value of Chittagong Ports Foreign Trade.

The total value of foreign trade declined from Rs.115,196,132 in the preceding year to Rs.97,395,553 in the year under report, showing a decrease of Rs.17,800,579, or 15.45 per cent. The coasting import fell from Rs.59,535,604 in the preceding year to Rs.46,498,450 in the year under report, recording a decrease of Rs.13,037,154. The import coasting trade of the Port of Chittagong itself declined from Rs.54,474,871 in the previous year to Rs.42,656,970 in the year under report, or by Rs.11,817,901, and that of its subordinate ports dropped from Rs.5,060,733 in the previous year to Rs.3,841,480 in the year under report, or by Rs.1,219,253. The coasting export trade dropped from Rs.21,963,010 in the previous year to Rs.17,485,637 in the year under review, recording a decrease of Rs.4,477,373. The export coasting trade of the Port of Chittagong itself declined from Rs.13,584,316 in the previous year to Rs.11,888,609 in the year under report, or by Rs.1,695,707, and that of its subordinate ports declined from Rs.8,378,694 in the previous year to Rs.5,597,028 in the year under review, or by Rs.2,781,666.

Steamer Line to the Maladives.

Mr. Didi, the Maldivian Representative in Colombo, has made arrangements to start a steamer service to the Maldive Islands and in all probability the proposal will come into effect no sooner the necessary facilities are provided in Colombo. Already Mr. Didi has sent in an application to the Colombo Port authorities, through the Government Agent, to lease a block of land for the erection of an office. The Port Commission at a meeting held, with Mr. B. G. de Glanville in the chair, considered the application and after discussion as to the advisability or otherwise of leasing the block of land required (Lot 1 in the preliminary plan, 1839), for the purpose of building office accommodation, it was ultimately decided to interview the Maladivan Representative with a view to ascertain to what extent it was proposed to utilise the water frontage of the site in question, before giving any decision on the matter.

Colombo Port Matters.

The Ceylon Government have approved the appointment on a two years' agreement of Mr. W. E. Alpin, Senior Diver, to the post of General Foreman, Harbour Engineer's Department, vice Mr. R. Underdown, retired.

Government has also approved the appointment on one year's probation of Mr. F. S. S. David, First Engineer, Harbour Tugs, to the post of Machinery Foreman, Dock and Slip, vice Mr. G. A. Young, retiring.

The timber landing area at Kochchikade and the whole of the warehouse was brought into use from August 9th, 1929.

The renewal of the superstructure of the Coaling Jetty No. 3 has been completed, except for tarring and cleaning down.

Of the twelve special quarters which are being erected at Bloemendahl for artisans, ten have been completed, and are occupied.

The nine quarters for coolies at Kolonnawa have also been completed and are now occupied.

Colombo Harbour Dredging.

During the month of July the dredger " Sir William Matthews " was engaged in dredging small ship berth No. 5, in the Colombo Harbour, until the 15th of the month, and was then moved to carry on the deepening in the coaling berths, and was working between Berths Nos. 17 and 18 S.W. During the month a total quantity of 28,600 cubic yards of dredged material was removed and deposited at sea. The usual main-

Ceylon and Indian Notes—continued.

tenance repairs to the dredger were also carried out during the month. The dredger " Sir John Coode " was laid up during the whole of the month.

Chittagong Port Developments.

The development of the workshops of the Chittagong Port have progressed during the last year. In conjunction with the extension of the buildings various new machine tools have been installed and put into service. A more powerful boiler and set of engines were installed in place of the old under-powered steam unit and an order for a new shearing and punching machine was also placed. During the year residential quarters at Monoharkhali for an Assistant Harbour Master and the Dredger Chief Engineer were sanctioned and put in hand. The old Seamen's Institute were dismantled in accordance with the scheme of development of this portion of the Monoharkhali area for port residential purposes. A scheme for workshops extensions, comprising new offices, durwans' quarters, foundry, stores, carpenters' shop, etc., was also sanctioned. The new offices and durwans' quarters were completed during the year and good progress was made with the other works.

Chittagong Port Dredging.

The new dredger " Patunga," which arrived in Chittagong on April 30th, 1928, and which was accepted by the Port Commissioners on June 13th, after trials, remained in regular commission till November 28th, when she proceeded to Calcutta for dry docking and final inspection. Dredging was, however, resumed in January this year, but was suspended in February on account of a broken slide valve in the pump engine. Repairs were effected in a fortnight, but in consequence of the river channels maintaining themselves at a sufficient depth to serve the needs of the port dredging was further suspended for the sake of economy till over the end of the financial year.

Colombo Passenger Jetty.

At a recent meeting of the Colombo Port Commission the proposed barrier at the approach to the Passenger Jetty for providing better traffic arrangements was considered. This was approved, and it was decided to display " In " and " Out " signs at the western and eastern approaches, respectively. The meeting also considered the advisability of the granting of a sum of Rs.900 asked for by the Harbour Engineer for improvements and alterations at the new Customs House and Passenger Jetty. It was ultimately decided that the proposed alterations and improvements should not be proceeded with until after the new gates had been fitted and their effectiveness demonstrated.

Bombay Port's Expenditure.

At a meeting of the Bombay Port Trust held on September 13th, the following estimates of expenditure were sanctioned:—

(1) Rs.24,000 for the purchase of stock of rails and miscellaneous permanent way materials. (2) Rs.16,215 for improvements to " H " Shed, Grain Depot, leased to the Imperial Chemical Industries (India), Ltd. (3) Rs.8,268 for erecting steel pale fencing along the railway lines at Wadala. (4) Rs.2,430 for provision of parking accommodation at Ballard Pier and improved arrangements for regulating traffic. (5) Rs.9,000 for constructing additional latrines at Sassoon Dock for employees of the motor repair shops and other lessees in the neighbourhood.

Amendments of the B.P.T. Railway Goods Tariff were approved to provide for reduction in the levy of wharfage at the cotton depot stations and re-booking charges of full wagon loads of grain and seeds received at the general shed at grain depot which are re-booked to a private shed at the same station.

A 20-year lease of a plot of land measuring 5444/9 square yards at grain depot was next granted to Mr. Khusru Ardeshire for erecting a restaurant. Terms for renewals of two leases on the Elphinstone Estate were also approved.

Bombay Port Trust Tenders.

Tenders accepted by the Bombay Port Trust include the following:—

(1) Messrs. F. K. Mody and Sons, Burmah Teak Crossing timbers (approximately 10,000 cubic feet), for maintenance renewals, etc., on the Port Trust Railway, Rs.5.3.3 per cubic foot. (2) Messrs. Alcock Ashdown and Co., steel work, Rs.160,910. (3) The Motherwell Bridge and Engineering Co., Ltd., steel troughing, Rs.87,520. (4) Messrs. Macbeth Bros., Co., Ltd., steel windows, Rs.11,736.

Colombo's Foreign Trade.

The Ceylon Customs Returns for August continue to show a balance of trade slightly in favour of the Colony. The total imports for the first eight months of this year are valued at Rs.274,454,746 and the exports at Rs.291,006,132. The import figures show little change compared to last year, but exports show a slight falling off, the 1928 total being Rs.283,650,574. Among imports appreciable increases over the period are registered under coal, coke and manufactured fuels, and oils, fats and rasins, while live animals for food, hardware and electrical goods show slight increase. Imported food and drinks as well as cotton manufactures and vehicles show pronounced decrease. Exports show a decrease under oil and oil seeds, and an increase of over Rs.6,000,000 under rubber.

Coming to the figures for Aug., the imports are Rs.31,636,427 and the exports of Ceylon produce Rs.32,202,488; the tendency to a decrease in imports that began by the end of June still persists, but the present situation must be recognised as better than that prevailing in the same month last year. Exports also are less than those for July, but certainly better than those in the first quarter of the year. The quantities and values of the principal produce exported are as follows: Tea, 19,059,129 lbs., valued at Rs.15,628,463; rubber, 14,522,493 lbs., worth Rs.7,662,978; desiccated coconut 73,877 cwts. at Rs.1,268,856, and coconut oil 91,929 cwts. at £1,864,479. The Customs revenue from import and export duties are Rs.3,351,408 and Rs.998,340 for the last month. Since the import duties were increased all round by 5 cents in every rupee, Rs.159,591 represents the receipts attributable to the certified taxes.

Increase of Shipping Rates Deplored.

The recent sudden increase of shipping rates by the British India Steam Navigation Company, Ltd., and the Bombay Steam Navigation Co., Ltd., have prompted the Cutchi people to protest again this action of the companies concerned and have already done so through the Cutchi Projakiya Parishad Association. The original rates charged by the companies were already very high and this increase goes to make them more unbearable. Hence their protest to reconsider the matter and to reduce the rates considerably bringing them to a lower level than even the original rates.

New N.D.L. Steamer.

The latest freight vessel of the Norddeutscher Lloyd Line to visit the East is the ss. " Isar," of 9,026 tons, which is one of the fastest vessels of her tonnage on the Far Eastern run. The outstanding feature of the vessel is the bow which has been shaped similar to the bows of ice-breaking vessels, producing a greater speed for less horse power. She is to maintain an express service between Shanghai, Marseilles and Japan ports with her sister ship the ss. " Donau."

The " Isar " was built at Hamburg. She is a 6,000 h.p. vessel and has accommodation for twelve passengers in single cabins furnished in modern style and fitted with real beds. She is of 9,026 gross tons and 5,636 net tons and has a loading capacity of 15,000 tons. The dimensions of the ship are: Length overall 153.5 metres, width 19.35 metres, height 10.26 metres, draught 8.44 metres. Loading equipment consists of 23 booms of 5 tons each, two booms of 3 tons each and two booms for every cargo of 50 tons and 30 tons.

Chittagong Port Matters.

The value of the Port Commissioners' properties at Chittagong (including light-houses, land, works, stock materials, vessels, cash, securities, etc.), was estimated on March 31st, 1929, to be Rs.7,497,887.

The total tonnage of imports, through Chittagong Port, during last year amounted to 1,101,975, a record figure and an increase of 5.18 per cent. over the previous year.

German Ship Runs Ashore.

The German steamer " Hochst," which sailed for Europe from Colombo on September 19th, has run aground off Minicoy Island, and is reported to be badly damaged. She sent an S.O.S. signal to Colombo and the Port Commission's seagoing tug, " Hercules," which left the port no sooner the message was received is already standing by the vessel. So far the efforts of the tug to tow the " Hochst " off the rocks have met with no success. The rescue work has been considerably hampered by the want of material and the weather conditions which are extremely unfavourable. The towing ropes snapped on several occasions and the combined efforts of the tug and the " Oliva " met with no measure of success. The latest messages received in Colombo from the tug is to the effect that weather shows signs of improvement and there is every prospect that in the next few days conditions will be more favourable. The master of the ill-fated vessel is hopeful of refloating the ship.

The forepart of the vessel has suffered considerably, but the rest of the vessel has fared better. The gaps which were discovered have been caulked and the little water that escaped inside has been kept well under control, so that at no time is there any danger of the ship being flooded. Most of the cargo that was jettisoned has been washed ashore, and the rest is safe on the vessel.

Ceylon and Indian Notes—continued.

The " Hochst " (Captain Brauer), arrived in Colombo from Padang on September 18th and sailed on the following day for Aden. She carries a general cargo. She was built or the Hamburg-America Line at Hamburg in 1927 and her tonnage is 6,854 nett. Minicoy, which is over 400 miles off Colombo, is a small storm-swept island which is very much " in the way " of the approaching north-east monsoon.

Singapore Floating Dock Opened.

An important change in the Far Eastern policy of the Admiralty was made on August 14th when the Admiralty Floating Dock at Singapore was formally opened. There was a very large gathering present to witness the opening ceremony and the floating dock looked like some new and strange war craft when the guests caught their first glimpse of her lying in the Straits of Johore. It was the first public ceremony yet held in connection with the creation of a naval dockyard at Seletar. The arrival of H.E. the Governor, who opened the dock, and Lady Clifford, escorted by two naval vessels, was most impressive, and the lines of the yacht seemed particularly beautiful as she glided between the massive dock walls, with many feet of water to spare under her keel. As she entered she broke a coloured cord slung between the walls. An R.A.F. flying boat circled overhead and the surrounding water was dotted with launches, motor boats, and the more prosaic lighters and tugs employed at the Naval Base. When the Seabelle II. came alongside, His Excellency and Lady Clifford walked down the gangway on to the 15-ft. wide top of the dock wall where His Excellency was met by Captain G. Mackworth, C.M.G., D.S.O., Captain-in-Charge of H.M.'s Naval Establishment at Singapore.

New Dockyard and Arsenal.

Captain Mackworth then briefly addressed the gathering and His Excellency replied. The voices were amplified by loud-speakers which were quite successful.

Captain Mackworth addressing the gathering said that in the unavoidable absence of His Excellency the Naval Commander-in-Chief, China Station, Vice-Admiral Sir Arthur K. Waistell, it was his privilege to offer His Excellency and Lady Clifford a loyal and cordial welcome on behalf of His Excellency the Naval Commander-in-Chief, and the officers and men serving in the Royal Naval Establishment at Singapore. He rejoiced to receive with His Excellency Their Highnesses the Rulers and Regents of Selangor, Negri Sembilan, Johore, Kedah Perlis and Brunei, and he offered them and the other distinguished guests most friendly greetings. The establishment of a Royal Dockyard in any port and the consequent advent of the fleet had always brought wealth and importance to the district and had a stimulating effect on trade, and he was confident that that great dockyard and arsenal would bring an ever-increasing prosperity to the land and people under Sir Clifford's most able administration. " It is an essential pleasure to us," said Captain Mackworth, concluding, " that Your Excellency's beautiful yacht is the first vessel to enter this great floating dock, the safe transport of which from England to Singapore, together with its mooring and reconstruction here, have been a tribute to modern seamanship and engineering skill. We ask that Your Excellency will consent in a few moments to set in motion the machinery that will raise the dock to full buoyancy for the first time since it passed into naval control. In conclusion, let me extend to Your Excellency, through you, to the Rulers and peoples of Malaya the best and most friendly wishes of His Majesty's Navy."

The Formal Opening.

Sir Hugh Clifford then pressed a lever which started the pumping machinery, and immediately a vibration went through the vast structure as the concealed electrical machinery began to pump out water at the rate of 30,000 gallons an hour. Slowly the dock rose out of water, and when the last of the visitors were taken off three-quarters-of-an-hour later the floor of the deck was just visible below the surface of the water. Once ashore again, the guests enjoyed the hospitality of the Captain-in-Charge and officers of the Naval Establishments.

Irish Harbour Matters.

Dredging at Cork for Fordsons.

With a view to the extension of the Fordson Tractor Factory at Cork, Messrs. Ford have induced the Cork Harbour Board to proceed with the dredging of the River Lee alongside their works. With one large hopper at work, Mr. Price, engineer, stated that the dredging would take 54 working days. The cost at £24 per day for the hopper will be £1,296.

Some 4,500 men are now employed at Fordsons, and it is stated that another thousand can be taken on when the extension is completed.

Dublin Transporter Bridge.

Having obtained legislative sanction for the purpose, through the medium of a Private Bill, the Dublin Port and Docks Board have started to make borings on the site of the transporter bridge, which it is proposed to build across the Liffey.

The project is now being criticised adversely on the plea that it would be an unnecessary burden on the ratepayers, because there is no excess of traffic on the north wall to relieve.

It is contended that in the preamble to the Bill passed by a Joint Committee of the Dail and Senate, the only specific reason given for building a transporter bridge was the great increase in, and congestion of, traffic on the quays.

In regard to the density of traffic the figures given in evidence were: Butt Bridge, 451; North Wall, 130. These figures refer to the hour of maximum traffic during the period under review, not the average traffic intensity, which might be much less. Thus a certain number of vehicles per hour per line of traffic may represent congestion in a two-line street, a similar figure will not apply to a four-line street.

Butt Bridge carries only two lines of traffic, while the North Wall carries four. In a four-line street, it is estimated that the inner line, would move at 10 miles per hour. The congestion figure for an inner line, would then approximate to 2,000 vehicles per hour. A capacity for the inner lines of this amount was claimed by the Dublin Port and Docks Board for Butt Bridge. If applied to the North Wall, this reasoning shows the intensity figure at 130 to be too high.

Some years ago there was congestion on the north quays, but these quays have been widened and improved for the purpose of dealing with the traffic.

In order to examine the matter thoroughly, it is suggested that the Minister for Local Government should appoint a Committee of Enquiry to investigate the facts and report to the Minister as to how he should proceed when the detailed plans and estimate are placed before him.

Port Improvements at Waterford.

The Waterford Harbour Commissioners have invited President Cosgrave to perform the opening ceremony at their new deep water jetty towards the end of November. Invitations have also been extended to the Free State Minister for Industry and Commerce and the Minister for Lands and Fisheries as well as the local Dail Deputies.

The new wharf has been constructed by Messrs. John Hearne and Sons, Waterford, at a cost of £26,000, plus £3,250 for the most modern up-to-date 20-ton electric crane.

Other works, of almost equal importance, are in progress and of these, the deepening of the grain berth and ford are the most notable. Waterford holds an important place as a grain-importing port and in order to keep abreast of the times and cope with the increased size and draft of present-day grain vessels, it has been found necessary to improve the present berthing accommodation. This work is now progressing. " The Thor," a rock-breaking craft, is busily engaged smashing the rocks on the river bed, which, up till now, have prevented vessels of deep draft from berthing here. This craft contains a spear some 30 tons in weight, which is hove up in a cylinder and allowed to drop the necessary distance—in this case 25-ft.—to pulverise rock obstructions in the river bottom. An attendant bucket dredger and hopper dispose of the debris.

When the work at the grain berth is completed, it is hoped to use this plant for deepening the ford. At present there is 13-ft. of water over the ford at ordinary low spring tides. It is intended to sink that at least 4-ft. more, giving a depth of 17-ft. at low water or 31 to 32-ft. at high water.

This will place the port in the position of being able to accommodate steamers of almost 25-ft. draft, or about 8,000 tonnage.

Nelson Harbour Board, New Zealand.

Annual Report for the Year ended 30th September, 1928.

The twelve months under review closed with a surplus of receipts over expenditure of £2,201 11s. 5d., as compared with a deficiency of £2,561 6s. 4d. for the corresponding period last year. The actual working account for the year is set out in the following table:—

RECEIPTS.

	£	s.	d.
Total ordinary receipts—			
Wharf dues	24,765	14	6
Harbour dues	4,908	18	2
Interest on Reserve Funds and Deposits	883	4	9
Rents	858	5	0
Harbour rate of 1s. 6d. of 1d. on £65,000 Loan	3,741	13	5
	£35,157	15	10

EXPENDITURE.

	£	s.	d.
Interest on Loans	8,076	10	0
Sinking Funds	2,830	0	0
Working expenses	13,054	1	11
Maintenance, etc.	4,024	8	2
Depreciation	4,971	4	4
Balance of Receipts over Expenditure	2,201	11	5
	£35,157	15	10

The principal Capital Expenditure for the year was:—	£	s.	d.
Reclamation Haven Road	3,334	17	10
Dredge "Te Wakatu"	1,175	16	2
Pontoon	100	8	3
Stores	891	10	8
Plant (engine)	95	0	0
	£5,597	12	11

The following show increased receipts:—	£	s.	d.
Goods Wharfage, Mapua	269	2	9
Wharfage Export, Nelson	321	2	4
Wharfage Import, Nelson	1,432	15	10
Overtime Dues	429	7	1
Pilotage	756	2	2
Port Charges	222	11	10

The following is of interest, as showing a comparison of the income and expenditure for the years 1921-28, inclusive:—

Year.	Income. £	Expenditure. £
1921	21,749	21,003
1922	27,302	29,914
1923	28,281	28,974
1924	27,202	29,329
1925	29,259	29,637
1926	30,804	35,093
1927	27,786*	34,376
1928	35,157	38,677

* Special rate not collected.

RESERVE FUND.

The General Reserve Fund now amounts to £10,500, plus interest, £462 11s. 11d.; the wharf renewal fund, £3,100, plus interest, £311 14s. 6d.

SINKING FUNDS.

The £103,000 wharf loan has now standing to its credit £11,702; and the £65,000 harbour loan, £9,110.

The liabilities total £168,402 15s. 4d., and comprise, unpaid loans, £168,000; sundry creditors, £402 15s. 4d.

The assets total £219,906 3s., made up as follows:—

	£	s.	d.
Cash and Reserve Fund	18,660	7	11
Sinking Funds	20,812	11	4
Real Estate	14,995	0	0
Wharves, Buildings, etc.	74,665	5	1
Mole	18,900	0	0
Dredging	50,000	0	0
Dredge "Te Wakatu"	6,287	3	10
Reclamation—			
Haulashore Island	3,000	0	0
Haven Road	3,580	15	7
Plant	3,961	15	0
Stock	1,712	8	3
Sundry debtors	3,340	16	0
	£219,906	3	0

The position thus disclosed is satisfactory, showing as it does a surplus of assets over liabilities of £51,503 7s. 8d. The early policy of building up a strong cash reserve fund will enable the Board in the future to strongly face any ordinary emergency that may arise. But, as it will be seen from the receipts and expenditure, the Board cannot, without encroaching on its reserves, at present manage without its harbour rate. For it will be seen that on reference to the statement of accounts for the year ending 30th September, 1927, a loss of £2,561 6s. 4d. was shown, and when this loss is set off against the surplus of £2,201 11s. 5d. it shows a deficiency of £359 14s. 11d. on the last two years' working.

Works Undertaken.

Three important works have been undertaken during the past twelve months, namely, the deflection of the Maitai, the deepening of the berthage wharf area, and the reclamation of an area of four acres. These important works, when completed, will largely add to the improvements of the wharf accommodation, prevent silting from the Maitai and give additional land for leasing purposes (thus revenue producing), and, if necessary, additional shed space. Already the harbour master has notified that the berthing of vessels at the outer north-eastern part of the wharf is much more easily accomplished than before the Maitai was turned from its course, and when this is taken into consideration the non-recurrence of silting of any appreciable extent in the future makes this work of considerable value. These works have entailed considerable expenditure as follows:—On the dredge "Te Wakatu" £1,175; on building stone walls and of pumping soil to reclamation area, £3,334 17s. 10d.; and on pontoon, engine and stores, £1,086 10s. 8d., making a total to date of £5,547 12s. 11d.

In connection with these works it will be remembered that, when in the report of 1924 it was suggested that a strong effort should be made to induce the Government to vest the foreshore from the wharf to the City in the Harbour Board, and when a deputation representing the Harbour Board, City and Waimea Councils, waited on the Government, the most impressive argument used was the need for improving the approach to the city by reclaiming a certain area, and it was, this argument that induced the Government to vest part of the foreshore in the Harbour Board and part in the City Council. In the reclamation that has been undertaken the Board are thus proceeding to redeem their promise, or, at least, giving effect to the strongest argument used when asking the Government to make over to them the foreshore.

It should therefore be the Board's policy to endeavour, so far as financial considerations will allow, to continue to deposit all its dredgings on the area vested in them, and by doing so gradually reclaim the area which has been referred to, not only to the present and prospective financial advantage to the Board, but also to largely assist in improving the approach to the city.

Mole and Wharf.

Both these important assets of the Board are in sound, good order, but the wharf will, as time permits, require renewals of piles and bracings.

Trade of the Port.

The shipping tonnage of arrivals for the year ended 30th September, 1928, was 353,115 tons register, as against 306,034 tons register for 1927, showing an increase of 47,081 tons for the year.

During the year eight overseas steamers, three inter-colonial steamers and H.M.S. Veronica visited the port.

The imports of cargo for the year ended 30th September, 1928, were 92,533 tons, and the exports 34,551 tons, making a total of 127,084 tons as against 82,571 tons imports and 31,667 tons exports; total, 114,238 tons for 1927.

Inward shipments from overseas are as follows:—1922, 878 tons; 1923, 1,929 tons; 1924, 5,738 tons; 1925, 10,271 tons; 1926, 9,026 tons; 1927, 8,101 tons; 1928, 9,555 tons.

The following cargo was exported during the year ended 30th September, 1928:—

	Coastwise. Tons.	Overseas. Tons.	Totals. Tons.
Butter	700	—	700
Cheese	441	—	441
Eggs	208	—	208
Fresh Fruit	17,144	2,241	19,385
Frozen meat	102	319	421
Hops	1,712	—	1,712
Pelts	3	11	14
Sheep skins	423	20	443
Tallow	35	126	161
Tobacco	506	—	506
Wool	1,055	134	1,189
Other goods	9,295	76	9,371
Total			34,551

The quantities of fresh fruit exported from Port Nelson are as follows:—

	Shipped. Bushels.	Transhipped. Bushels.	Total. Bushels.
1922 ...	219,950	141,900	360,850
1923 ...	220,525	153,700	374,225
1924 ...	213,275	153,925	367,200
1925 ...	180,600	143,525	324,125
1926 ...	245,324	148,774	395,098
1927 ...	228,496	80,900	309,396
1928 ...	281,818	202,784	484,602

Exports of fresh fruit from Port Mapua are as follows:—

	Overseas Bushels!	Coastwise Bushels	Total Bushels
1922 ...	16,225	24,151	40,376
1923 ...	24,150	36,748	60,898
1924 ...	53,291	56,630	110,921
1925 ...	61,464	53,139	114,608
1926 ...	164,941	58,728	223,669
1927 ...	129,576	59,697	189,273
1928 ...	206,616	72,079	278,695

During the year eighteen Board Meetings and five Committee Meetings were held.

In conclusion, it was urged that the question of obtaining a report from some thoroughly qualified harbour engineer, preferably from one who had had early experience of the harbour conditions, on the general position inside and outside the "Cut." It was considered important every few years that such a report should be in the hands of the Board in order to put them in possession of any alterations that may be taking place in the sandbanks, etc. The Board had in the past had such reports furnished from various engineers, the last being by Mr. Cyrus Williams, in February, 1923, which showed that the conditions were satisfactory, or to quote the words of his report: " I look upon the Board's operations, as far as they have gone, as entirely satisfactory."

Port of New Orleans.

The Nation's Second Gateway for Foreign Trade.

The report of the Research Bureau of the U.S. Shipping Board on foreign commerce through United States ports during the calendar year 1928, shows that 8,158,641 long tons of 2,240 lbs. passed over the wharves of New Orleans in the import and export trade of that year, maintaining for New Orleans the rank of second port in volume of foreign trade, as it likewise ranks in point of value. The increase of imports and exports combined amounted to 6 per cent. or 460,993 tons over the record for the year 1927. Imports were 4,250,182 long tons, exports were 3,908,459 long tons, a balance of trade not equalled by any of the major ports of the country. These figures do not include any of the trade of sub-ports located on the Mississippi in the vicinity of New Orleans.

Increase of New Orleans Shipping in September, 1929.

There was an increase of 36 ocean vessels entering the port of New Orleans in September of 1929, as compared with the same month of the previous year, and an increase of 37 departures, according to the records of the Board of Commissioners of the Port of New Orleans. Arrivals were 266 vessels in deep-sea trades as against 230 in the previous September, while departures were 275 as against 238. The gross tonnage of arrivals was 1,050,893, as compared with 902,584 in September, 1928, or an increase of 148,309 gross tons. The Board does not make record of the tonnage of departing vessels. Seventy-three per cent. of arriving vessels used the public wharves. The figures given are exclusive of vessels entering the Mississippi to use landings either above or below the jurisdiction of the Port Commission.

The distribution of vessels using the Port of New Orleans in September, 1929, was as follows:—

Flag.	No.	Gross Tons.
American	158	676,276
British	15	74,124
Brazilian	1	4,748
Belgian	1	4,438
Colombian	1	2,054
Danish	10	26,684
Dutch	1	8,871
French	5	35,503
German	6	25,678
Honduran	26	64,001
Italian	5	30,409
Japanese	1	9,445
Nicaraguan	4	6,271
Norwegian	28	75,017
Panaman	2	1,336
Swedish	1	1,836
Spanish	1	4,202
Total ...	266	1,050,893

Modern Shipside Storage at New Orleans for Goods handled by the Inland Waterways Corporation.

By agreement with the Board of Commissioners of the Port of New Orleans, the Mississippi-Warrior Service of the Inland Waterways Corporation have obtained preferential rights to Section 6 on the second floor of the public cotton warehouse, where shipside storage is available henceforth for the goods of importers, exporters, and coastwise or inter-coastal shippers. Option also has been obtained by the barge line on Sections 4 and 5, and it is anticipated that the requirements for storage of merchandise in transit will result soon in the exercise of this option, thus placing 75,000 square feet of storage space into this service.

The construction of this facility is such that freight is moved in one operation between ship and storage, so that the cost of stevedoring service includes movement into or out of storage, with no additional handling charges. This is effected by means of travelling cargo bridges which connect any part of the storage space with ship slings at any hatch. The building is of concrete and steel construction, enjoying a low insurance rate and providing complete protection for any merchandise stored therein. Two sections of the lower wharf already are used by the barge line under the " first-call-on-berth " privilege, this space being directly below the warehouse floors.

Third Large Barge Line Service to enter the River Trade.

A new barge line service between Cincinnati and New Orleans will be opened in June, 1930, by the Mississippi Valley Barge Line Co., of St. Louis, Mo., according to information from officials of that company to the New Orleans Dock Board. Details of the projected service have not been made known, but it is understood that 50 barges and 5 towboats now are under construction and soon to be delivered. A bi-weekly service is said to be in contemplation, with a downstream schedule of 6 days from Cincinnati to New Orleans and an upstream schedule of 12 days. Intermediate points will be served, as Louisville, New Albany, Henderson, Brookport, Metropolis, Joppa, Cairo, Bird's Point, Memphis, Helena, Greenville, Vicksburg, Natchez and Baton Rouge.

This will be the third large barge line service in operation between New Orleans and the upper valley. Those now operating are the Mississippi-Warrior branch of the Inland Waterways Corporation, which reaches as far as St. Paul-Minneapolis on the Mississippi, and the American Barge Line which reaches as far east as Pittsburg.

The Institute of Transport.

The one hundredth meeting of the Council of the Institute was held on Monday, October 14th. Sir Josiah Stamp occupied the chair for the first time as President of the Institute and Mr. James Milne, C.S.I., the General Manager of the Great Western Railway, was elected to full membership.

Port of Cherbourg Contracts.

Tenders are invited for the supply of such harbour facilities as: electric cranes, elevators, movable gangways for passengers and luggage, etc., to be erected at the new deep water wharf. For particulars apply to the Cherbourg Chamber of Commerce. Quotations should be sent by registered mail to the President of the Cherbourg Chamber of Commerce before November 20th, 3 p.m.

Junior Institution of Engineers.

The Junior Institution of Engineers are holding their Annual General Meeting and Election of Officers on Friday, 8th November, at 39, Victoria Street, S.W.1, at 7.30 p.m.

New Fishery Survey Vessel wanted for South Africa.

Information has been received that the High Commissioner for the Union of South Africa is calling for tenders, to be presented in London by the 20th November, 1929, for a new fishery survey vessel built on the lines of the " Castle " type trawlers. (Contract No. 212).

Firms desirous of offering a British built vessel can obtain further particulars of this call for tenders upon application to the Department of Overseas Trade, 35, Old Queen Street, London, S.W.1. Reference number A.X. 8730 should be quoted.

Launch of the "Araucano."

A New Submarine Depot Ship for the Chilean Navy.

THE ceremony of launching the "Araucano," the latest addition to Chile's modern fleet, was most gracefully performed by Madame Tila Urrutia de Escobar, the wife of the chief of the Chilean Naval Commission in London, at the Naval Construction Works of Messrs. Vickers-Armstrongs Limited at Barrow-in-Furness, on the 22nd October, in the presence of a large and distinguished gathering. His Excellency the Chilean Minister to this country (Senor Don Antonio Huneeus), together with his wife and daughter, were present, and also the British Minister to Chile (His Excellency A. Clark-Kerr), Mrs. Clark-Kerr, His Excellency Admiral Luis Escobar, Admiral A. P. Addison, C.B., C.M.G. (Official Representative of the British Admiralty), Mrs. Addison, Mr. G. G. Sim, C.S.I., C.I.E. (Vice-Chairman of Vickers-Armstrongs Ltd.), Mrs. Sim, Commander C. W. Craven (Managing Director of the Barrow and Newcastle Works), Mrs. Craven, Officers of the Chilean Legation, Officers of the Chilean Naval Commission, British Naval Officers, Representatives of other Foreign Governments stationed in Barrow, the Mayor and Mayoress of Barrow, and the Directors and Chief Officials of the Works.

The Reverend Father T. Calderbank officiated at the blessing of the ship, which was carried out according to the ritual of the Roman Catholic Church.

The lunch at the General Offices immediately following the launch was presided over by Mr. G. G. Sim, who, in wishing good luck to the "Araucano" and all who sailed in her, and thanking Madame Escobar for so kindly coming to Barrow to launch the ship, asked her to accept a diamond brooch with the best wishes of the Company as a memento of what he hoped had been to her a pleasant visit to Barrow.

The "Araucano" has been constructed to provide the Chilean Navy with a vessel capable of efficiently maintaining six large Submarines of the "Captain O'Brien" class at sea, and affording that rest and recreation for the Officers and Crews of the Submarines which is so important during prolonged service away from a land base.

She is a steel, single-screw, coal burning steamer, equal to Lloyd's highest class for foreign-going vessels, and the principal dimensions are as follows:—Length B.P., 390-ft.; breadth, moulded, 55-ft.; depth, moulded, to upper deck, 30-ft. 3-in.; mean draft loaded, 16-ft. 6-in.; speed, 13 knots.

Provision is made for all the necessary services to the submarines, including the supply of fuel, battery charging, workshops for running repairs, spare torpedo body and head stowage, and accommodation for their officers and crews. In the double bottom ample capacity is provided for oil fuel and reserve feed water and fresh water. Special attention has been given to the lifting appliances for quickly transferring stores, torpedoes, and spare parts of machinery to and from the submarines when moored alongside the depot ship.

The Captain, Submarine Commanders and Officers are each provided with a comfortably appointed cabin, and bathrooms and lavatories are provided in convenient positions. Separate dining rooms are arranged for the Captain, the Commanders, and the Officers, with a smoke room and lecture room adjacent. These rooms are neatly panelled and comfortably furnished. Accommodation is arranged for 68 Sub-Officers in four-berth cabins, 80 Petty Officers in folding bunks and 386 Seamen and Stokers, with the necessary bathrooms and lavatories. Ample store rooms are provided for provisions, etc., for prolonged service at sea.

The main propelling machinery consists of one set of Parsons Compound Turbines, driving the single four-bladed propeller through single reduction helical gearing with Vickers-Bostock-Bramley "Enveloping" tooth. The turbines comprise one impulse reaction high pressure and one all-reaction low pressure, working in series, and driving separate pinions engaging with the main gear wheel. Two astern turbines are fitted, comprising an impulse wheel in the H.P. ahead cylinder, working in series with an impulse reaction turbine embodied in the L.P. ahead cylinder casing. The total shaft horse power developed is about 2,500 and the astern turbines have about 65 per cent. of the full-ahead power. Steam is supplied by three single-ended cylindrical boilers, arranged for coal burning only under Howden's system of hot forced draught. The total heating surface of the boilers is about 7,000 square feet. The condenser, of Weir's Regenerative type, is under-slung from the L.P. Turbines. All the usual auxiliary circulating pumps are supplied of the latest practice. Two complete sets of evaporating and distilling plants are provided.

The workshops, which are situated forward of the machinery spaces, consist of the following:—Heavy machine shop, light machine shop, pattern shop and foundry, carpenters' shop and torpedo and electrical workshop. These workshops are equipped with all the necessary machines, the most efficient of their respective types, and facilities to enable any ordinary repair work to be carried out on board. Suitable stores are provided adjacent to the various shops.

The electrical equipment is comprehensive and in accordance with the latest naval practice. The electrical generating machinery consists of two turbo-dynamos for the ship's general service and lighting purposes and two turbo-dynamos for battery charging purposes. The lighting of the officers' cabins, crew's quarters and workshops has been carefully considered, and special fittings are provided to avoid eyestrain. Electric fires are fitted for the comfort of the captain, and in the officers' smoke room. In addition to the ordinary lighting and power requirements of the ship and the submarines, the following facilities are provided, all of the most up-to-date type:—Two large and two small searchlights, telephone and bell systems, gyro compass equipment, electrical rudder indicator, under-water signalling system, Echo depth sounding machine, wireless equipment and direction finding equipment.

In the construction of the "Araucano," the builders have had the advantage of their experience in the construction of H.M.S. "Medway" and H.M.S. "Resource," two vessels of similar type, and the result will, without doubt, be to provide the Chilean Navy with a most valuable addition to her modern fleet.

Book Review.

"The Shipping World Afloat and Ashore." Compiled and edited by John A. Todd, M.A., B.L. Published by Sir Isaac Pitman and Sons, Ltd., at 7s. 6d. net.

This book, which consists of 292 pages, is a compilation of lectures delivered at the City School of Commerce, Liverpool, and in its entirety is a survey of the world's shipping, covering such matters as the ship, engines, ship operating, trade routes, shipbroker, passengers and emigrants, shipping office organisation, owners' and employees' organisations, navigation, salvage, ports and harbours, coasting and inland transport, warehousing and cold storage

The book is divided into five sections, each section of which is sub-divided into chapters, of which there are seventeen.

Section 1 is devoted to ships and their uses, and Chapter One of this section, entitled "The Ship," gives the history of the ship from sail to steam, from wood to iron and steel, passenger and emigrant steamers, cargo ships, food ships, refrigeration, construction and launching, whilst Chapter Two covers the various types of engines.

Section 2 comprises three chapters under the heading of "Ship Operating." The first chapter in this section describes the training of the captain, officers, and crew of the upper deck, whilst the second chapter is devoted to the training of staff below deck; and the third chapter deals with victualling and the pursers' department.

Section 3 is devoted to traffic and is sub-divided into three chapters, the first of which deals with trade routes. The second chapter describes the shipbrokers' duties and qualifications, sale of ships, chartering, and loading and discharging, and the last chapter is entitled "Passengers and Emigrants."

Organisation is covered in Section 4, the first chapter of which deals with shipping office organisations. The next chapter, being sub-divided into two parts, deals with trade organisations. The third chapter is entitled "Navigation, Weather, and Tides," which is followed by a chapter on salvage.

The last section in the book, Section 5, is under the heading of "Ports." The first chapter of this section is entitled "Ports and Harbours," and is a lecture by Colonel T. H. Hawkins, of the Mersey Docks and Harbour Board, in which he describes the different types of ports, tides, approach, lay-out, port government, and various other items of interest. The next chapter is given up to towage and bunkering, and is followed by a chapter on stevedoring. The last two chapters deal with the coasting trade and inland water transport, warehousing, and cold storage.

The editor is to be congratulated on collecting such a useful series of lectures and compiling them in this book, which should certainly prove of great assistance to anyone connected with ships, dock, or harbours.

Junior Institution of Engineers.

"Electric Welding, as applied to Bridges and other Structures on the London and North-Eastern Railway."

Under the above title Mr. Harold Bruff (Member) read a paper before the Junior Institution of Engineers recently, which made public for the first time the results of experiments and researches conducted by him and the Bridge Engineers Department of the Northern Section of the L. and N.E.R. on the applicability of the electric arc in depositing metal and welding together the members of bridges and other iron and steel structures.

Mr. Bruff stated that from being a frank sceptic of any possible advantage from the system, his researches and the work done and tested on his Railway, he had become an enthusiast on its immense possibilities both as a time and money saver.

The system employed is that known as the quasi-arc in which the structure to be strengthened or repaired constituted the negative pole of the circuit and the metal rod called the "electrode" formed the positive pole. On contact being established between the electrode and the work an arc is formed which fuses the electrode and metal flows from the electrode and adheres to the work. It appeared that though the poles might be reversed or an alternating current used, the metal would still flow from the "electrode" to the work and not vice versa. The most suitable voltage was between 30 and 60 and the current 100-105 amps per welder.

Before trying experiments with actual bridges tests were made to determine the strength and cost of the welding system. A steel beam was cut in halves, one half left untouched and the other had its tension flange cut through and it was otherwise completely ruined, in which state it was handed to the electric welders for repair. Subsequent tests on the untouched half and the repaired half proved the latter to be stronger than the original beam.

A three-girder bridge on the old Hull and Barnsley Line was selected for strengthening by electric welding. Prior to starting the work the bridge was tested with a Foster Strainmeter. After detailing the method of strengthening, the lecturer exhibited stress diagrams taken with the same loads and at the same points as before which indicated that the manner in which the strengthening had been done caused an abrupt change of section and although it did not seriously affect the particular bridge, it was necessary to make the change a gradual one. On applying similar strengthening methods to the trough flooring of the bridges and taking tests before and after the work results were obtained which plainly indicated the presence of some force which had not been taken into account. It was found that the unequal heating of the plates caused stresses and to obviate these a system of repairing small sections at a time at points removed from each other was the most successful.

The great advantage of the welding system was its non-interference with the use of the line by traffic as would be the case if a bridge could not be strengthened except by rebuilding.

The success which had been achieved on old works had led his company to employ the method in the fabrication of new steel structures with equally good results and the principle had also been applied to the building up of worm points and rails at cross-overs with much success.

Elaborate tests had been made by his Company and at Armstrong College, Newcastle, to determine the relative tensile strengths of joints made by riveting and welding nearly all of which indicated the superiority of the latter, provided the work was done by a careful operator using an electrode of the appropriate size and quality.

Detailed statements of all the costs involved in carrying out the work were given, from which it appeared that both in strengthening old structures and executing new work the cost of welding was well below the cost of riveted work.

Lloyd's Register Shipbuilding Returns.

From the statistics issued by Lloyd's Register of Shipping regarding vessels under construction at the end of September, it will be noted that in Great Britain and Ireland there is a decrease of 5,551 tons in the work in hand as compared with the figures for last June, but that the present total—1,448,355 tons—is 358,595 tons greater than the tonnage which was being built at the end of September, 1928.

It may be of interest to state that about 65,000 tons of the tonnage now in hand in this country are intended for the British Dominions; about 78,000 tons for Norway; and about 189,000 tons are for other foreign shipowners or for sale.

The tonnage now under construction abroad—1,368,984 tons—is 15,335 tons less than the work which was in hand at the end of June.

Seven countries abroad have more than 100,000 tons under construction, viz.:—Germany, 235,499 tons; Holland, 224,029 tons; Japan, 156,810 tons; France, 135,776 tons; Russia, 112,073 tons; the United States, 112,010 tons; and Sweden, 111,427 tons.

The total tonnage under construction in the world amounts to 2,817,339 tons, of which 51.4 per cent. is building in Great Britain and Ireland, and 48.6 per cent. abroad. The average percentages in the last twelve months before the war were 57.2 for Great Britain and Ireland and 42.8 for abroad.

In Great Britain and Ireland 360,087 tons were commenced—a decrease of about 68,000 tons over the similar figures for the June quarter; and 369,445 tons were launched—a decrease of about 23,000 tons. Similar figures for abroad are 300,606 tons commenced, and 345,927 tons launched.

An increase as compared with the previous quarter is shown in the tanker tonnage under construction, the present figures being 53 vessels of 400,913 tons, of which 27 vessels of 226,412 tons are being built in Great Britain and Ireland. It is of interest to note that of the 53 tankers under construction, 45 are motor ships.

The tonnage of motor ships under construction in Great Britain and Ireland (651,875 tons) amounts to over 82 per cent. of the tonnage of steamers building, while the motor ship tonnage being constructed abroad (879,878 tons), exceeds by nearly 83 per cent. the tonnage of steamers.

The continued progress in the employment of the internal combustion engine for the larger vessels is indicated by the fact that while there are now building in the world 68 motor ships each of 8,000 tons and upwards, only 21 steamers of such size are under construction. These figures include 15 motor ships and 5 steamers each of 15,000 tons and upwards.

The table respecting marine engines unfortunately does not show complete world figures for marine engines of all types, as the figures for steam turbine engines building in Germany are not available; but the table shows that the indicated horse-power of reciprocating steam engines now building or being fitted on board amounts to about 521,000 horse-power, while the figures for oil engines aggregate about 1,334,000 horse power.

Tonnage to Lloyd's Register Class.—The pre-eminent position which Lloyd's Register retains amongst the Classification Societies of the world is demonstrated by the fact that the tonnage actually under construction throughout the world under the inspection of Lloyd's Register reaches 1,688,084 tons, of which 1,097,757 tons are being built in Great Britain and Ireland.

Port Dues in Yugoslavia.

The Department of Overseas Trade has received from the Commercial Secretary at Belgrade the following list of official rates of exchange for the payment of port dues in Yugoslavia during the month of October, 1929:—

	Dinars.
1 Gold Napoleon	218.00
1 Pound Sterling	275.50
1 American dollar	56.80
1 Canadian dollar	56.50
1 German mark (gold)	13.54
1 Belga	7.90
1 Brazilian milreis	6.75
100 gold francs	1,095.70
100 French francs	222.30
100 Italian lira	297.20
100 Dutch florins	2,278.00
100 Roumanian leis	33.80
100 Danish crowns	1,512.00
100 Swedish crowns	1,521.00
100 Norwegian crowns	1,512.50
100 pesetas	839.00
100 Greek drachmas	73.60
100 Finnish marks	143.00
100 Latvian lat	1,089.00

Personal enquiries regarding shipping and transport matters should be made at the City Office of the Department (Shipping and Transport Section), 73, Basinghall Street, London, E.C.2.

The World's Largest Transformers.

The strengthening of bridges and the lowering of railway lines 18-in. at one point to permit clearance were necessary to transport the four largest electric power transformers ever built from the Westinghouse works at Sharon to Roseland, New Jersey, U.S.A. Each transformer is 35-ft. high, weighs approximately 300 tons, and requires a floor space of 22-ft. by 23-ft. About 32,000 gallons of oil are required for each transformer. The transformers are rated at 220,000 volts, but were tested at 570,000 volts, believed to be the highest test ever applied to a transformer. There are 32 miles of wire in the copper windings of each transformer.

Bremen Harbour.

New Buildings at the North Quay of Dock No. 2.

An extensive new shed and crane installation has been erected and will soon be completed at the North Quay of Dock No. 2 where a short time ago the giant steamer " Bremen " was before it left on its journey down the Weser

Constructed and finished in accordance with the very latest technical methods these new installations increase the efficiency of Bremen Docks to a great extent.

The new sheds are Nos. 15 and 17, of which the latter already has been completed as far as the walls and roof are concerned, and the crane installations for conveying the ships' cargoes into the shed.

The constructors, the Maschinenfabrik Augsburg-Nurnberg A.G. (M.A.N.) have supplied 24 lever cranes—12 similar cranes are being built by a Bremen firm according to the M.A.N. specifications—16 electric capstans and all electrical work underground.

The Gute Hoffnung-Hutte (iron foundry) is supplying over 12 kilometres of rails with points and crossings.

The installation, which will deal especially with the reception and storing of cotton, shows a number of interesting innovations.

The sheds have narrowed ends on account of the rail communications. The constructions of the roofing and trellis baulks which have been built in the upper lights are supported by a row of pillars which have been placed wide apart.

The supports of the crane rails are joined in a curious manner with the supports of the doors on the water side. The latter are made of pressed steel plates, and fitted with ball bearings which make them easy to manipulate and can be opened to any extent desired.

Cranes of three tons carrying capacity with 19 metres greatest discharging length and 22.9 metres gauge run on traversing beams and overspan four railway lines.

The lever action of the crane jib is curious with a horizontal running load and saves current, time and space so that several cranes can work one ship's hatch.

These cranes are especially interesting on account of their sectional construction in the latest modern style.

The parts which are conveyed by rail, are mounted on rails in several sections built together successively, the beams from the one side and the crane houses on the other.

Every four to five days these single parts of two complete cranes are put together by means of a floating crane belonging to the A. G. Weser.

The ingenious constructions and method of working made possible, in spite of the long winter, the erection of about 4,600 tons of ironwork within the short time laid down for delivery.

The sheds, with their steel and stone walls, have an increased protection from fire by a sprinkler system. Part of the constructions was taken over on the 1st September.

The amount of astonishingly thorough work done is shown by the fact that the foundation was only begun on the 1st April, on the 8th May the erection of the sheds commenced, and on the 10th June the erection of the crane installations.

The foundations were built by the Bremen firms Schibli A. G. and Koehncke.

The movement of the long row of the half-door lever cranes will allow unusually quick loading and discharging.

Bombay Port Trust.

At a meeting of the Trustees of the Port of Bombay held on 10th September, 1929, the following main items of business were disposed of:—

The audited accounts for the year ending 31st March, 1929, were approved and the surplus of Rs. 5.95 lakhs in General Account was transferred to the Revenue Reserve Fund, the balance in that fund as at 31st March, 1929, being thereby increased to Rs.68.75 lakhs (market value). The surplus of Rs. 1.17 lakhs under Pilotage Account was transferred to the Vessels Replacement Fund.

Amendments of the Docks Scale of Rates were approved (subject to Government sanction) to provide (a) for exemption from wharfage of oil temporarily pumped out of the pipe lines into tank barges so as to allow of the pipe lines being used for other varieties and (b) to apply the Bonded Warehouse rates to dangerous goods confiscated by the Collector of Customs and temporarily stored on Government account pending destruction or re-export.

The tenders of Messrs. Shaw Wallace and Co., and Messrs. Balmer Lawrie and Co. for Rs. 14,676 and Rs. 37,874 for corrugated galvanised steel sheets for the new shed at the grain depot were accepted.

At a meeting of the Trustees of the Port of Bombay held on 24th September, 1929, the following main items of business were disposed of:—

Mr. Syed Munawar, B.A., M.L.C., J.P., who recently proceeded to Geneva with the Government of India delegation to the International Labour Conference, was granted leave of absence from the meetings of the Board for three months from 21st September, 1929.

The tender of Messrs. Shapurji Pallonji and Co., for the supply to the Port Trust of 500 tons " Swastika " cement for construction works was accepted.

The following estimates of expenditure were sanctioned:—

(1) Rs. 13,000 for construction of garages and washing places on the Mazagon-Sewri Reclamation to be leased to the Havero Trading Co., Ltd., in connection with their storage godown under construction.

(2) Rs. 4,985/- for extending the garage accommodation at the administrative Offices.

Ninety-nine-year leases of Plots Nos. 4, 6 and 15, Old Cotton Green, Colaba, were granted for erection of first-class residences. This area, which is one of the best at Colaba, is being rapidly taken up; nine plots having been leased within the last few months.

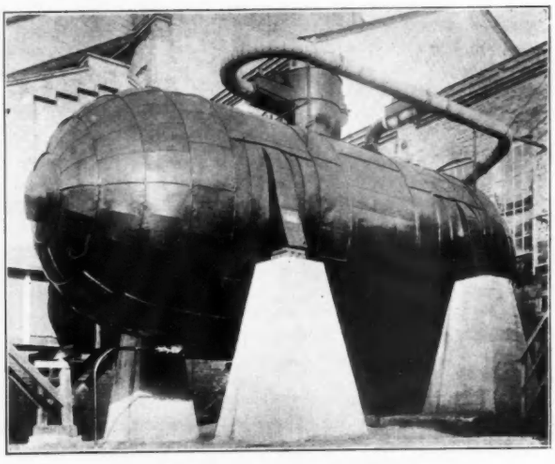
A surrender of a portion of the land leased under Rent Roll No. 1035, Mody Bay Estate, was accepted and a new lease of the same area was granted to the Bombay Seamen's Society for a contemplated extension of the Society's premises.

Power Generation for Docks and Harbours.

(*Continued from page 4.*)

of boilers, but the mechanical circulation causing a velocity of flow in the water tubes of the boilers sweeps sediment and steam bubbles off the heating surface, with increased efficiency of heat transference.

Fig. 3 is a diagram of the Smoot steam accumulator and control system. This accumulator stores exhaust steam from blowers and other generating plant auxiliaries, making this steam available for use when required. It provides a means for using the drainage from steam traps, hot water and exhaust steam from any sources which would otherwise be inadvisable to connect to the low pressure steam line supplying steam direct to the point of use.



Ruths Steam Accumulator Installation.

The accumulator, combined with a special form of control adopted, delivers stored steam at constant pressure. Just before the pressure in the accumulator falls below the pressure at which the regulator is set, high pressure steam is admitted by the regulator, but only in sufficient quantity to maintain constant pressure.

The Smoot accumulator is actually a water separator, and steam discharged from it averages less than 1 per cent. moisture even if the incoming steam is very wet.

Any oil entering the accumulator with the exhaust steam is removed and clean steam is discharged.

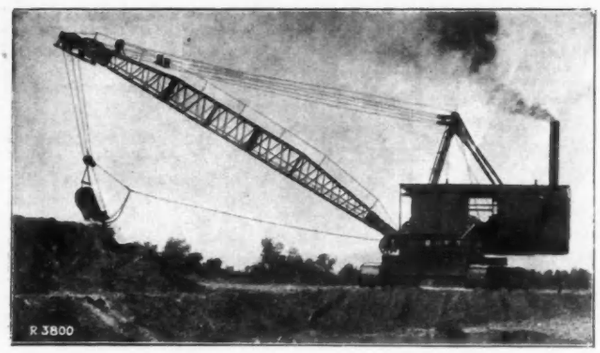
In operation, the accumulator is filled with water to about 75 per cent. of its capacity. The inlet steam, by being divided into small streams, comes into contact with the water, thus maintaining the temperature of the water equal to that of the steam passing through. During the storage period, both the temperature and pressure in the accumulator are increased.

When a demand for steam is made on the accumulator, the pressure is lowered, causing the water to boil and the steam produced absorbs heat from the water, gradually lowering the water temperature until approximately as much heat has been given off as was previously absorbed during the storage period.

Specify **RUSTON**

EXCAVATORS

for Dock and Harbour Excavations



Ruston Excavators are in constant use wherever saving time and money is the essence of an excavating job. No class of excavation emphasises this more than Dock and Harbour Work—a Ruston speciality.

The machine shown is a Ruston No. 300 Dragline.

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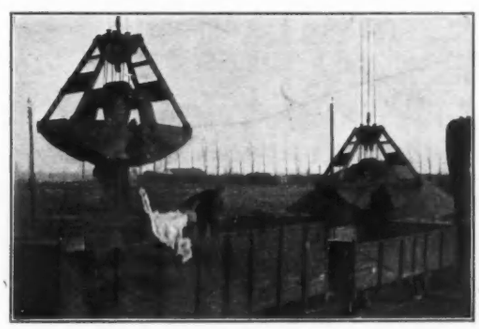

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Canadian Notes.

New Type of Grain Carrier on Canadian Canals.

The Davie Shipbuilding and Repairing Company has just launched at its shipbuilding yard at Lauzon, Quebec, a vessel to be named "Grainmotor," which has been ordered by the Canada Steamship Lines, Ltd., and which is an experiment in the more efficient and economic transportation of grain through the St. Lawrence canals. The general manager of the Steamship Company, in a public announcement, stated that the "Grainmotor" will be capable of bringing through the canals cargoes of about 100,000 bushels.

The new vessel is the first Diesel engine craft to operate in the Great Lakes-St. Lawrence grain trade. It will provide more space than the steam-propelled craft. Operating on a 14-ft. draught through the present St. Lawrence canals, the "Grainmotor" will exceed the capacity of any other craft on the route by about 5,000 bushels. Next year the much larger grain boats of the Upper Great Lakes will be enabled to operate through the new Welland Ship Canal to the transhipment points at Kingston and Prescott, and the experiment of the Canada Steamship Lines in providing a more efficient craft for the lower canals will be watched with interest. It is believed by officials of the steamship company that the future vessel for reshipment of grain through the St. Lawrence canals to Montreal and Quebec will be driven by internal combustion engines.

Canadian Wheat Pool Elevator.

The Canadian Wheat Pool now owns and operates for its more than 140,000 farmer members, 12 terminal and 1,600 country grain elevators with a total capacity of 90,770,000 bushels. Last year the Pool marketed 210,000,000 bushels of grain, sufficient to make a stream 39,000 miles long, 1-ft. deep and 1-ft. wide.

Grain Elevator Construction at Churchill, Manitoba.

Work on the construction of the Hudson Bay Railway and on the port facilities at Churchill, Manitoba, is now nearly a year ahead of expectations when building was begun.

According to an announcement recently made by the Hon. Charles A. Dunning, M.P., Minister of Railways and Canals, it has been decided to build a 2,000,000-bushel elevator at Churchill instead of the 1,000,000-bushel plant suggested by the Palmer Report. The building will be of the most rapid transfer type available and foundation work will be begun next summer in order that the elevator and a portion of the deep water dock may be available by the fall of 1931.

On the railway line a considerable amount of further track work will be necessary before the road-bed will be consolidated and sufficiently safe for regular services with standard equipment. After consultation with the officers of the Canadian National Railways, however, it has been decided not to attempt to establish a public passenger and freight service to Churchill this year, or to encourage movement of special excursion parties.

As to the harbour, Mr. Frederick Palmer estimated that three years would be required for the completion of the first unit of that development. It is interesting to note that the first full season's work has already been almost completed. Dredging, of which there will be 2,000,000 cubic yards, is proceeding rapidly and two big dipper dredges with 8-yard buckets are working day and night. Assisting dredging operations are two 500 cubic yard steel dump scows, served by the tugs "G. W. Yates" and "Graham Bell." Included in the fleet also are two self-propelled hopper barges. An average of nearly 6,000 cubic yards has been removed daily during the season, and on certain days 8,000 cubic yards has been handled. The material is being dumped in Hudson Bay, a mile-and-a-half beyond the entrance to the port. Over 900-ft. of inside crib has been sunk in place, and by early next season it is expected to have the crib seat sufficiently dredged to start the building of the outer crib wall with 32-ft. of water alongside at extreme low tide. This will greatly aid the progress of further port development.

Welland Ship Canal approaching Completion.

Lock No. 8, the largest in the world, was opened at Port Colborne, Ont., recently when the ss. "Meaford," of the Canada Steamship Lines, passed into the Welland Ship Canal on its way from Lake Erie to Lake Ontario. The opening of the guard lock brought into operation another stretch of the new canal reaching from Port Colborne to Ramey's Bend. The descent of the Niagara escarpment will, however, continue to be made through the locks of the old Welland Canal, the new waterway being scheduled to come into operation next year.

Lock No. 8 controls the level of the water in the canal from the entrance at Port Colborne to Lake Erie as far as the top of the escarpment at Thorold, where the seven lift locks installed between that place and Port Weller overcome the difference of 325½-ft. between Lakes Erie and Ontario. The new lock is 1,380-ft. in length and 80-ft. wide and is thus 25-ft. longer than the biggest lock at Sault Ste. Marie, exceeding in length also the largest in the Panama Canal. It can contain end to end the two largest vessels plying the Great Lakes.

The new Welland Ship Canal is expected to be open for navigation about the middle of next summer. Locks Nos. 1, 2 and 3 at the Port Weller end of the canal will be ready for ships by the opening of navigation next year and the remaining four Locks Nos. 4, 5, 6 and 7 will be opened progressively during the early summer.

Construction of the new canal, which will be 25 miles in length, has proceeded intermittently since before the Great War, though most of it has been done since 1920. The total estimated cost of this great engineering project is $120,000,000.

Institute of Marine Engineers.

Arrangements have been made to hold the Annual Conversazione on Friday, 29th November, 1929, at the Hotel Victoria, Northumberland Avenue, W.C.2.

An excellent musical and dance programme has been arranged, and the President, Engineer Vice-Admiral Sir Robert B. Dixon, K.C.B., and Lady Dixon, will attend and hold a reception. Reception, 7.0—7.30. Supper at 10.0 p.m. Carriages at 2.0 a.m.

Tickets can be obtained on application at the Institute, 85/88, The Minories, Tower Hill, London, E.C.3, price 21/- each. The programme will be on similar lines to that of previous years.

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